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Demand for Crude Oil Is Increasing

Highest production in 1931, week ending Aug. 8, average daily output 2,551,807 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Shipments Exceed Pipe Line Runs in Two Big Fields. Increased Confidence Is Shown Among Producers

By James McIntyre

Lowest daily average crude oil production in the United States during 1931 was for week ending Sept. 5 with average output of 1,736,007 bbls.

While crude oil production in the United States increased 32,839 bbls. per day in the past week, the total of 2,139,056 bbls. is sufficiently low to keep runs below shipments.

In East Texas, for example, where production is curtailed strictly on a basis of the prevention of waste, the production—that is, the pipe line runs from wells, was considerably less than the pipe line and tank car shipments, indicating a draft on stocks in the field.

In the Oklahoma City Field, which is curtailed on a basis of supply and demand, the pipe line nominations were sufficient to cause an increase of production of about 29,000 bbls. per day, and this demand promises further increase as winter wanes.

The condition, then, is healthy, the only disturbing factor being the tendency on the part of a few producing companies in East Texas to continue the fight against any kind of restriction to their operations. Suits have been filed against the Governor, the militia heads and the Railroad Commission itself by various outfits. It is another case of the tail trying to wag the dog, as a very large majority of the operators, are in favor of keeping the field curtailed.

The Railroad Commission has ordered that effective March 15, the East Texas field produce a maximum of 325,000 bbls. per day until further notice, which will necessitate a reduction in the quantity each well may produce per day. Its order is based on what it considers the best engineering advice as to withdrawing oil from its reservoir with the end in view of getting the maximum volume of oil from the sand.

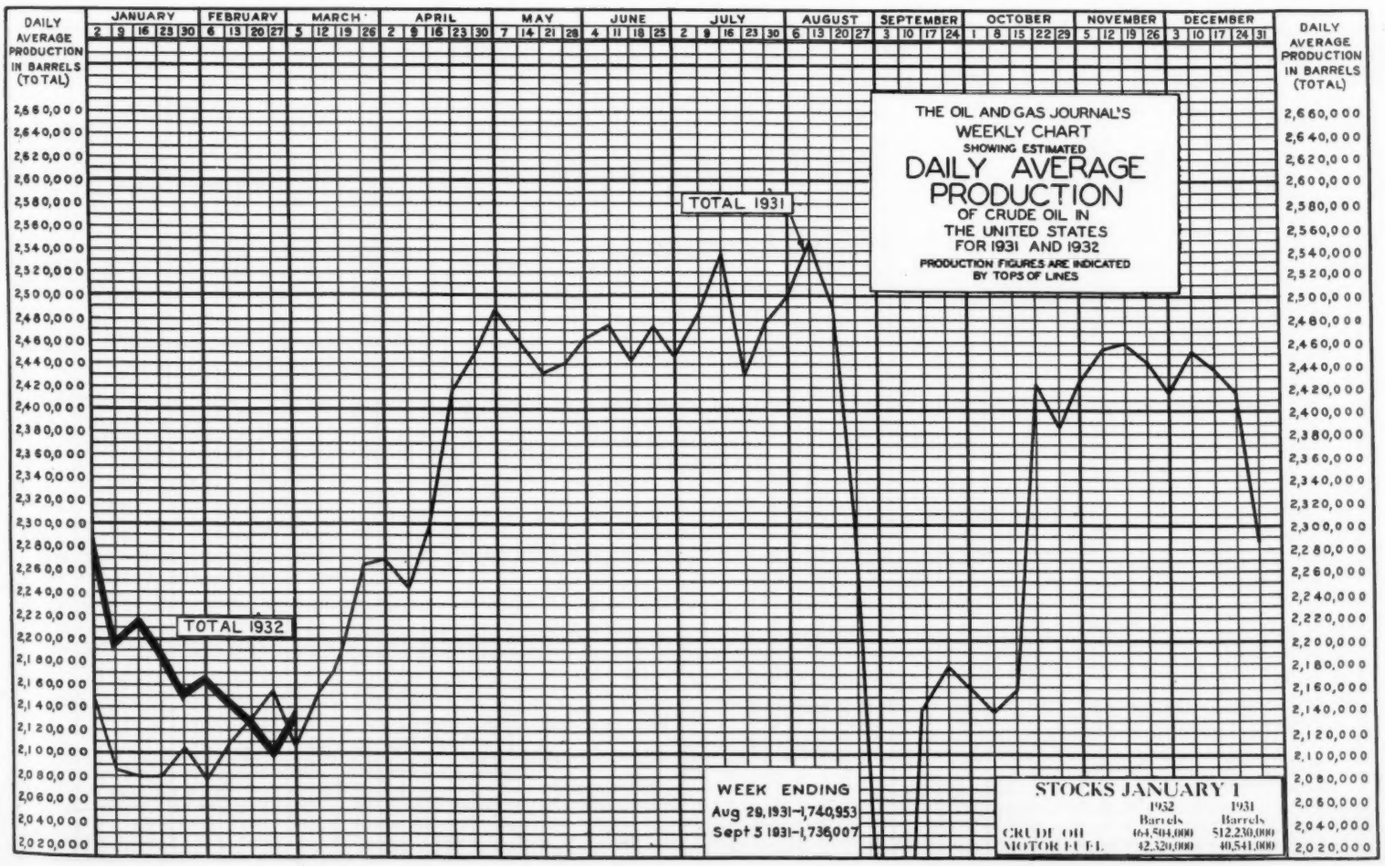
Confident that the East Texas situation can be handled in one way if not another, and that elsewhere the production program is progressing satisfactorily, there is a more hopeful feeling among producers than has existed for some time past. Outside of a few flush fields production is dropping steadily, having shown a decline in the older areas of 48 per cent in two years, and there is a determined effort afoot to avoid the mistake of last year of permitting production to get beyond reason, as the graph on this page shows it did in 1931.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for the week ended February 27, and a comparison with the previous week, follows:

	Feb. 27	Feb. 20
Oklahoma—		
Oklahoma City	109,320	80,090
Seminole-St. Louis	120,085	129,403
Remainder of State	202,215	204,072
Total Oklahoma	431,620	413,565
East Texas—		
Kilgore	96,658	87,056
Lathrop	108,077	98,195
Joiner	100,036	36,820
Total East Texas	304,771	279,071
West Texas	178,743	175,962
North Central Texas	70,956	72,048
Texas Panhandle	47,605	49,415
East Central Texas	54,587	55,236
Gulf Coast Texas	102,860	106,152
Southwest Texas	58,132	59,545
Total all Texas	817,654	797,429
Kansas	99,940	98,980
North Louisiana	28,195	28,495
Gulf Coast—Louisiana	26,138	27,609
Arkansas	33,865	33,500
Eastern Fields	117,000	120,000
Rocky Mountain Area	84,144	83,639
California—		
Santa Fe Springs	64,750	66,000
Long Beach	79,000	79,500
Playa Del Rey	19,750	19,750
Elwood	16,500	17,000
Kettleman Hills	59,500	60,750
Remainder of State	261,000	260,000
Total California	500,500	503,000
Total United States	2,139,056	2,106,217

→ **Increase 32,839 Bbls. Daily** ←



Improvement Noted in Gasoline Market

Oklahoma Quotations on Principal Domestic Grades. Naphtha in Demand for Blending With Naturals. Bright Stocks Lower

By C. O. Willson

Following a 30-day period of exceptionally slow movement and weak prices the U. S. Motor gasoline market in Oklahoma (Group 3) pointed upward as the month of February was brought to a close and a new month opened. The low of the U. S. Motor market advanced from 2¾ cents to 3 cents and it was thought that a 3⅛-cent level would be established by the end of the week.

The low octane 60-62 400 endpoint advanced to a low of 3⅛ cents. The 57-65 octane grade of U. S. Motor and 60-62 400 endpoint grades was a full one-half cent higher than the low octane material and above 65 octane grades, three-fourths cent higher. The high octane was scarce in Oklahoma.

Blending naphthas shared in the strength of domestic gasolines. The 50-52 450 endpoint with a price range of 3 to 3¼ cents is selling above the low octane U. S. Motor gasoline. Refiners who had been selling various grades of blending naphthas from one-fourth to one-half cent under the U. S. Motor market over the past week, have been able to get premium prices. This situation is entirely due to the low prices for natural gasoline and the increasing importance of octane rating in motor fuels. A jobber or blender can blend up to 50 per cent 26-70 natural gasoline with a 450 to 437 endpoint naphtha. Although the naphtha usually has a low octane value the use of the natural gasoline brings the rating of the final blend to 60 octane or better.

Cases are cited in which the finished blends are better than 70 octane. One middle west jobber is reported to be purchasing a naphtha made from Smackover crude oil at an Arkansas refinery with an octane rating above 70. He also purchased a 16-pound vapor pressure stabilized natural gasoline and by blending the two is able to obtain a motor fuel with an octane rating of 74 which up to March 1 was equivalent to Ethyl Gasoline. On March 1 the minimum octane for Ethyl Gasoline was increased from 74 to 78.

By making the ordinary blends of naphtha and natural gasoline the jobber or blender can obtain a motor fuel at a cost of 3 cents or less. He thus saves from one-fourth to three-fourths cent per gallon when the net price is compared with the prevailing market for refinery gasoline coming within the octane rating of 57-65.

This blend, of course, does not come within the government specification for U. S. Motor gasoline. The only danger point so far as performance is concerned is excessive vapor pressure. The blend usually has a vapor pressure in excess of 12 pounds, which is the maximum for U. S. Motor during the winter months. However, as long as it is under 16 pounds there is little danger of vapor lock in car engines, particularly during the winter weather. By many jobbers the increased volatility and high gravity of the blend is considered an important advantage when compared with the regular refinery grades.

Increased Competition

There is additional evidence of the competition of natural gasolines in the motor fuel market. Not only is the quantity of natural gasoline blended with refinery naphtha increasing but more and more stabilized natural gasoline is being sold direct as motor fuel. Due to the slow domestic refinery demand for natural gasoline and the lack of export outlets, several manufacturers are stabilizing their output so that it can be sold direct to jobbers. The prevailing market for 26-70 natural gasoline is 1⅜ to 1½ cents. This is the grade generally sold to refiners who use from 10 to 20 per cent in blends at their refineries. By stabilizing to meet the specifications for 18-57 the prices can be increased to a spread of 1⅞ to 2⅛ cents.

Certain manufacturers are going a step farther and stabilizing to as low as 12-pound vapor pressure, 97 per cent recovery and around 80 gravity. These grades are selling at a price of 2¾ to 4 cents per gallon. Losses in these superstabilized grades when compared to 26-70 grade run as high as 50 per cent. However, as long as the ordinary grades of natural gasoline continue to sell at the ridiculously low prices which have prevailed in the Mid-Continent over the past eight weeks, it is apparent that the manufacturers can afford to take these heavy

(Continued on Page 88)

REFINED MARKET BAROMETER

There was little uniformity in price trends at refineries over the past week. The domestic gasoline market in the Mid-Continent and Middle West was slightly stronger but prices were lowered at East Coast points and the coastal markets generally were reported weak for export movement due to the low priced Rumanian and Russian competition. Bright stock and steam refined stock prices were advanced in Pennsylvania but Mid-Continent prices were lower and neutral oil quotations reflected weakness at coastal points. Heavy fuels and gas oils continued slow. Fair demand at steady prices for kerosene and furnace oils. Natural gasoline prices unchanged. Slow demand for wax.

Mid-Continent—Some improvement in demand at higher prices for U. S. Motor gasolines. High gravity and low endpoint grades unchanged in price with slow demand. Kerosene firm. Natural gasolines unchanged. Industrial fuels slow. Bright stock prices lower.

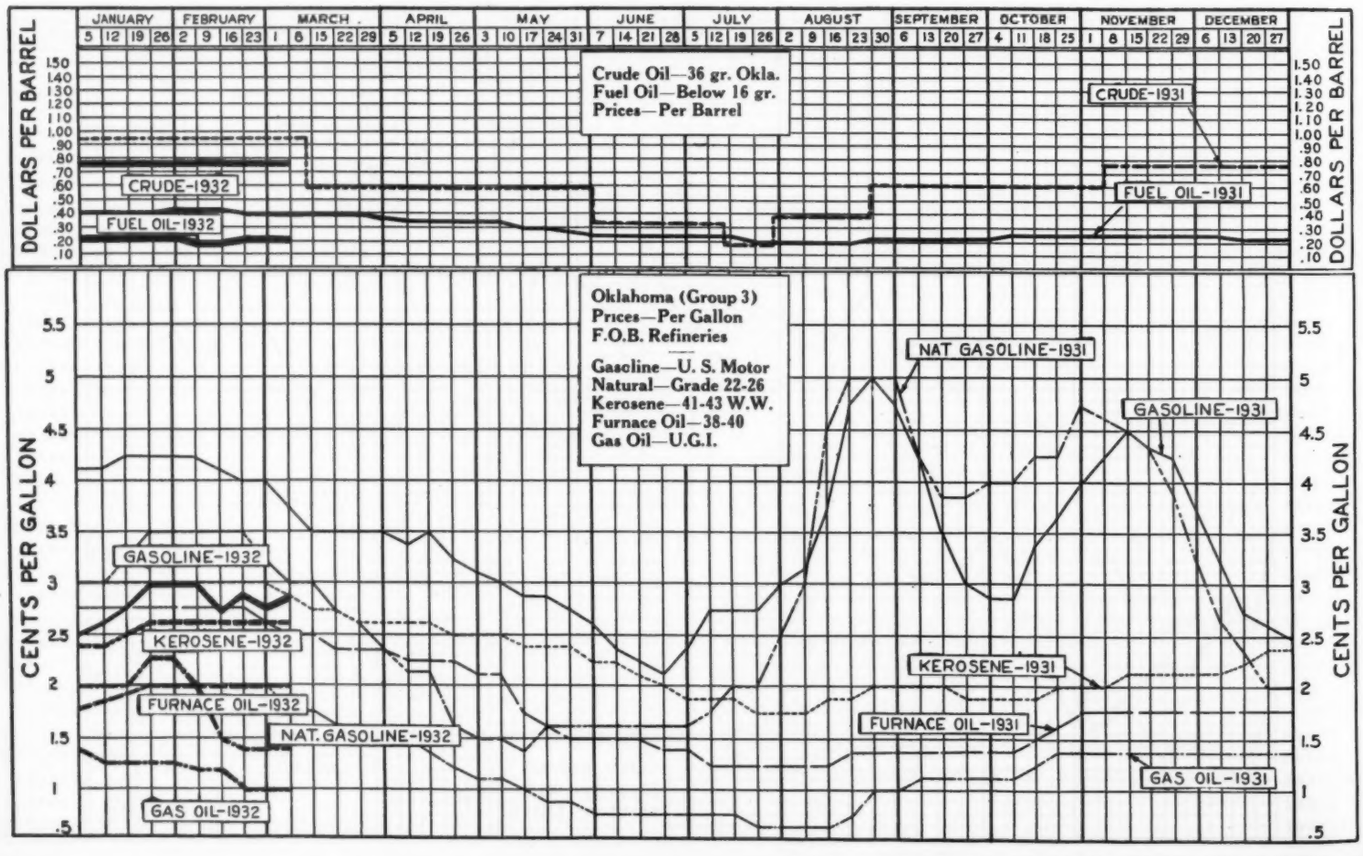
East Coast—Prices on low octane and high octane gasolines lower. Kerosene firm. Heavy fuels slow. Diesel oil and gas oil steady. Fair demand for furnace oils. Bright stocks strong.

Chicago—Gasolines stronger. More activity in special naphthas. Better tone to kerosene. Furnace oil and tractor fuel unchanged. Fuel oil and gas oil slow.

Pennsylvania—Market on some grades of gasoline lower. Kerosene prices reduced. Additional advances in bright stocks and some grades of steam refined stocks.

Gulf Coast—Pale and red neutrals very slow and prices lower. No improvement in gasoline. Fuels weak.

California—Prices on some grades of gasoline lower for export movement. Fuel oil prices lower. Other products unchanged.



Commission Rule Back in East Texas

New Order Supersedes Martial Decree by Governor Sterling, Who Retains Troops in Field Pending Appeal

AUSTIN, Tex., Feb. 29.—The Texas Railroad Commission Thursday afternoon issued proration orders for East Texas to supplant the military regime that has controlled the field since August 16.

The order followed the three judge federal court decision that martial law was unjustified as a means of regulating production. It adopted the same 75-bbl. per well per day production limit as that fixed by military decree and approved by the operators themselves. Effective March 16 at 7 a. m., the production limit was placed at 325,000 bbls. per day, prorated among all the producing wells.

Troops under Brig. Gen. Jacob F. Wolters remained in the field. The court's decree forbade the troops interfering with four wells of the Constantin-Wrather applicants for injunction. Attorney E. F. Smith, representing Governor Sterling, left for Washington to file the governor's appeal from the court decision with the U. S. Supreme Court.

Governor Sterling protested "confusion" over the controlling authority in the field. Asked: "Are the troops to assist the Railroad Commission?" his reply indicated the troops will continue to function under executive orders rather than commission orders. Lots of things are being reported that require adequate forces to preserve order in the field, Governor Sterling said.

The Railroad Commission's order was made effective at 7 a. m., February 26. It provided that the production allowable and other provisions will be subject to change March 15, without further hearing of the new basis.

The order was signed after Chairman C. V. Terrell held a long conference with Governor Sterling, and after Attorney E. F. Smith and oil men from East Texas had been in separate conferences with Governor Sterling. Assistant Attorney General Fred Upchurch, who took part in a conference with the federal judges at Houston in drafting the decree to be entered, advised with the commission on its new order resuming civil control of the field.

The Railroad Commission order, after stating the case had been reopened on February 12, said: "We verily believe that the orders entered September 2, 1931, and at later dates, without doubt served a useful purpose, and though perhaps not perfected, were a material improvement over past operations when the field was out of control. The findings of September 2, 1931, as to the necessity for spacing and tubing of wells, limiting the penetration of the producing horizons, plugging back for salt water, the prevention of fire hazards, and the like, where appropriate, are here adopted for this order." The order continues:

Text of Order

Since the hearing of August 25, 1931, it is evident from the testimony taken at our recent hearing and from reports of our own agents, that much valuable information as to pressures, pressure declines, oil-gas ratios, the movement of the water table, and other engineering data has been accumulated and compiled so that the engineers were enabled to testify with more assurance and more conclusively at our hearing of February 12, 1932, as to what is going on underground in said field.

From the testimony at that hearing, it appears clearly evident that (a) withdrawal of oil in the past has been too rapid as the mean bottom hole pressure has dropped from 1,600 to about 1,425, or approximately 2 pounds for every 1,000,000 bbls. of oil produced, whereas under the orderly conservative program of production, under this commission's orders, in the Yates Field in Pecos County, the decline in pressure has been, by comparison, during the past year about 21 pounds per square inch or six-tenths of 1 pound for each 1,000,000 bbls. of oil produced; (b) that the reservoir energy of the East Texas Field has been dissipated at an excessive rate due to excessive and disproportionate withdrawals of oil from the field; (c) that reservoir pressures have not been maintained as effectively as they should be in order to prevent liberation of "free gas" and consequent high oil-gas ratios and resulting gas waste; (d) that the two lifting agencies (gas energy and water drive) have not been properly conserved and co-ordinated, and in said field there is a notable deficiency of gas, which fact demands not only the most effective plan of orderly production of oil to conserve gas energy but a proper use of the water drive by withdrawals of oil at such slow rates and under such conditions as will permit the water to come in and gradually and effectually displace the oil. (e) that the maximum ultimate recovery of oil per acre of the field has not been but can be attained only by the maintenance of an orderly, gradual oil production. (f) that maximum daily production should be limited to slightly in excess of 300,000 bbls. as a maximum, but that water intrusion or actual physical waste would be greatly minimized at a production rate for said field below 300,000 bbls. per day, such low rates being necessary for the orderly encroachment of water and consequent maximum ultimate yield of oil.

On careful consideration of all the evidence adduced at the hearings in this cause held on August 25, 1931, and February 12, 1932, before the Railroad Commission of Texas, the said Railroad Commission is of the opinion and so finds and orders that the following rules and regulations are reasonable and essential to the conservation of oil and gas and the prevention of physical waste thereof in the said East Texas Field, and that they will prevent, or greatly minimize, the waste of crude petroleum oil and natural gas, and will correct the unsatisfactory and wasteful conditions hereinbefore referred to.

Text of Rules

Rule 1. (a) Rule 37, adopted November 26, 1919, is hereby amended in so far as it applies to the East Texas Field so as to hereafter read as follows: No well shall hereafter be drilled for oil or gas at any point less than 660 feet from any drilling or completed well. and no well shall hereafter be drilled for oil, or gas at any point less than 330 feet from any property or division line. provided, however, the commission, in order to prevent waste or to protect vested rights, will, after hearing, grant exceptions permitting drilling within a less or shorter distance than hereinabove prescribed, upon application duly filed fully stating the facts, notice of such application and hearing having been first given to all adjacent lessees affected thereby; provided, that if all adjacent lessees affected thereby waive in writing, notice of hearing on or objection to the granting of said application, the commission may proceed to determine such application without hearing.

(b) Any owner or owners of an oil, gas or mineral lease, covering a tract or tracts of land of the same fee title of 20 acres or less, shall not drill more than one well for oil or gas on said tract or tracts of land, and such well shall be properly spaced according to Section (a) hereof. Exceptions may be granted as in Section (a) hereof or to meet forced offsets.

(c) Any owner or owners of an oil, gas or mineral lease, covering a tract or tracts of land of the same fee title of 20 acres or more, shall not drill more than one well for oil or gas on each 20-acre part or unit thereof and such well shall be properly spaced, according to Section (a) hereof. Exceptions may be granted as in Section (a) hereof, and to meet forced offsets. Each tract shall, however, not contain more than one fractional unit and the division of each such tract into units may be made by the owner thereof, subject to the approval of the commission. When the equivalent of one well for every unit or fractional unit has been permitted on each such tract of land regardless of the location of the wells on such tract, no additional wells shall be allowed on undrilled units unless and until forced by offsets.

Rule 2. A minimum of 100 feet of surface casing shall be run and cemented with at least 30 sacks of quick-set cement for 10-inch casing and 50 sacks for 12½-inch casing. Cement shall be allowed to set a minimum of 12 hours before drilling plug.

Tests Required

Rule 3. New, or reconditioned, casing that has been tested to 800 pounds per square inch before running, shall set six

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ELEVEN POINTS OF ERROR CITED AS BASIS OF APPEAL

TYLER, Tex., Feb. 27.—Eleven points of error by the Federal Court passing on the martial law case in East Texas were alleged as partial basis for appeal to the Supreme Court by E. F. Smith, of counsel for Governor Sterling and others in an assignment filed here. Mr. Smith is on his way to Washington with papers for appeal in the case.

He charged the court erred as follows:

In finding it had jurisdiction to grant injunctions against the three defendants;

in finding it had jurisdiction to inquire into and determine whether insurrection or riot existed in the oil field at the time the governor determined such a state did exist;

In finding evidence showed no insurrections existed on the dates when martial law was declared and when a temporary injunction was issued by Judge Bryant against the defendants; in finding there was no evidence of danger of insurrection and riot was imminent;

In finding that Governor Sterling as governor of Texas, had ousted the Railroad Commission from enforcing conservation laws of the State; in finding the governor had no authority under the constitution and laws of the State to declare martial law;

In finding restrictions placed by the governor during martial law was taking the plaintiff's property or trespassing on property rights of the plaintiff in violation of the Fourteenth Amendment of the Constitution of the United States; in finding the suit against the defendants in their official capacities was not a suit against the State of Texas.

In granting the injunction because this was without support either in facts or by the law in this case; in holding it had jurisdiction to control by injunction the means employed by the governor to suppress the insurrection and riot declared by him to exist in his martial law proclamation;

In substituting the court's judgment and discretion for that of the governor of Texas.

GOVERNOR STERLING ISSUES NEW MARTIAL LAW ORDER

AUSTIN, Tex., Feb. 27.—The following proclamation was issued by Governor Sterling following entry of the Federal Court injunction in the East Texas martial law case:

"Proclamation on martial law issued February 26, 1932.

"To Brig. Gen. Jacob F. Wolters:

"Whereas, a three-judge Federal Court has granted a temporary injunction restraining me as governor of Texas, and you as commanding officer of the Texas National Guard in charge of law enforcement under martial law during the present existence of insurrection and riot and imminent danger thereof in the counties of Gregg, Upshur, Rusk and Smith, and Gen. W. W. Sterling as adjutant general of the State of Texas and all persons acting for or under the direction of either of us and from enforcing any military or executive orders passed or to be passed regulating or restricting the production of oil from the oil wells owned by E. Constantin and J. D. Wrather described in their pleadings filed in the case in which the temporary injunction was granted, or from in any manner directly or indirectly interfering with the lawful production of oil from the plaintiffs' property; and

"Whereas, the three-judge Federal Court has refused a stay of the injunction pending an appeal from the judgment of said court to the Supreme Court of the United States;

"Whereas, the decree or judgment of the court has not yet been entered, but when entered, plaintiffs having filed bond as required by said decree, the same will then according to its terms be effective; provided the court had jurisdiction and power to thus interfere with the efforts of the State of Texas acting in its governmental and sovereign capacity to enforce obedience to its own laws and by the use of its citizen soldiers to suppress and prevent insurrection and riot, and the imminent danger thereof; and

"Whereas, I am advised not only by the attorneys representing us in this litigation, but by other eminent lawyers, that the action or attempted action of the Federal Court was without authority and sanction of the law, my attention being directed to the fact that the said court overruled an opinion of U. S. Judge Foster in the case of the United States vs. Wolters, 268 Fed. 69, wherein Judge Foster expressly held that the governor of Texas had complete authority to institute martial law, and that the governor could do anything necessary to make his proclamation effective, which opinion of Judge Foster, so I am advised, is fully sustained by the Supreme Court of the United States in Moyer vs. Peabody, 212 U. S. 78; Martin vs. Mott, 12 Wheat, 19; Luther vs. Borden, 7 Howard, 1; and the decisions of many other Federal and state supreme courts. Notwithstanding these facts it is the duty of those charged with enforcement of the laws to not only

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Tubing Flow Prolongs Life of Wells

Experiments Carried On in California Demonstrate Value of Running Flow Strings Early in Life of Wells

By Hallan N. Marsh* and Bruce H. Robinson†

It is generally believed that the flowing of wells through tubing instead of casing results in the conservation of gas. It is further believed that use of tubing prolong the flowing life of a well and results in greater ultimate recovery, provided either that there are no adjacent wells, or that any adjacent wells are similarly operated. Recent experience in the flowing of Buckbee zone wells at Santa Fe Springs has not only substantiated both of these beliefs but has led to the further conclusion that the use of tubing results in a greater cumulative flowing production, even in a highly competitive field like Santa Fe Springs, where the wells concerned are closely offset by wells of both the same and other companies flowing through casing. Further, gas-oil ratio has been so reduced that greater ultimate recovery can be expected.

In the belief that such would be the case, the majority of the Buckbee zone wells of one company were brought in through tubing, but enough wells were flowed through casing to form the basis for a comparison. For the purpose of this comparison, wells with flow strings 2½ or 3 inches in diameter are designated as tubed wells, while those having flow strings larger than 3 inches in diameter are designated as untubed wells. Casing used was mostly of 5¾-inch diameter, the remainder being of 4¾-inch diameter. There were 15 tubed wells and 8 untubed wells and they were scattered over the field in such a way that neither group appears to have any distinct advantage as regards location. Locations of all wells involved in the comparison are shown on Figure 1. All the Buckbee sand wells of the company are included in the average production curves, with the exception of eight that were unsatisfactory for reasons other than the method of flowing.

Findings

1. Buckbee sand wells flowing through casing larger than 3-inch had an average maximum production rate of 4,670 bbls. per day, while wells flowed through

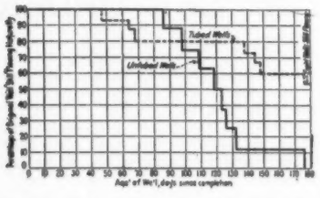

Fig. 3.—Life of wells flowing naturally, Buckbee zone, Santa Fe Springs.

straight tubing or 3-inch casing had an average maximum production of only 3,300 bbls. per day. (See Figure 2.)

2. The production of untubed wells declined so much faster than tubed wells that at the end of 40 days the average production for both classes was the same, 1,600 bbls. per day. (See Figure 2.)

3. At the end of 176 days all untubed wells were dead or upon compressor while eight of the tubed wells were still flowing naturally (See Figure 3.)

4. The original untubed wells are now all dead or on gas-lift and had an average cumulative flowing production of 178,000 bbls. each. At the time the original 15 tubed wells had reached an average cumulative production of 178,000 bbls. their average production rate was still 400 bbls. per day and their indicated cumulative flowing production was 230,000 bbls. each. (See Figure 5.)

5. The greater cumulative flowing production for tubed wells was secured in spite of the proximity of other wells (some of which flowed through casing) and the fact that the average date of completion of the tubed wells happened to be 29 days later than for untubed wells.

6. The average initial gas-oil ratio for untubed wells was 1,450 cubic feet per barrel while that for tubed wells was only 1,000 cubic feet per barrel. Moreover, the ratio for the untubed wells climbed more rapidly than the ratio for the tubed wells, so that at the end of 110 days the ratio for the untubed wells was 5,100 cubic feet per barrel while that for the tubed wells was 3,600 cubic feet per barrel.

7. During the later flowing life the ratio for the untubed wells fell rapidly, so that the wells soon died or were put on gas-lift because the gas had been depleted during their earlier life. In the meantime the tubed wells retained a moderate ratio and were thus able to continue flowing (See Figure 4, showing

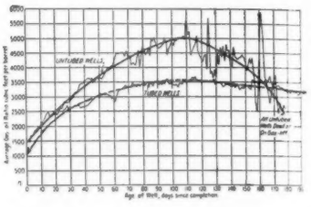

Fig. 4.—Gas-oil ratio, Buckbee zone, Santa Fe Springs. All flowing wells on individual meters.

ratios, and also Figure 3, showing how the untubed wells died as their ratios fell off.)

8. The early dissipation of gas and subsequent drop in ratio for untubed wells is even more striking when plotted against cumulative production (Figure 5).

Discussion of Data

The data show that the use of tubing increases the cumulative flowing production of a well even under highly competitive conditions, and in spite of some of the offset wells being flowed through casing. The use of tubing further results in a substantial conservation of gas, or lowered gas-oil ratio during the early life of a well. This is believed to be the cause of longer sustained production and indicates that the use of tubing will increase not only the flowing production but the ultimate recovery as well.

The use of tubing has a further very desirable effect from an economic standpoint, in that it not only secures a greater flowing production but does it with a lower maximum rate of production, and thus reduces the tankage and pipe line facilities required and renders less severe the flooding of the market that occurs when a new field is developed. This applies not only to oil but to gas. For economic reasons it has been considered impracticable in the past to even extract the gasoline from all of the gas produced during the flush period in the life of a

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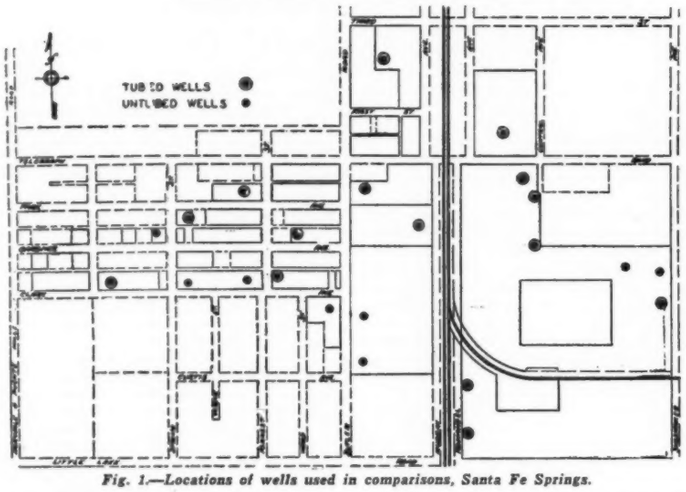

Fig. 1.—Locations of wells used in comparisons, Santa Fe Springs.

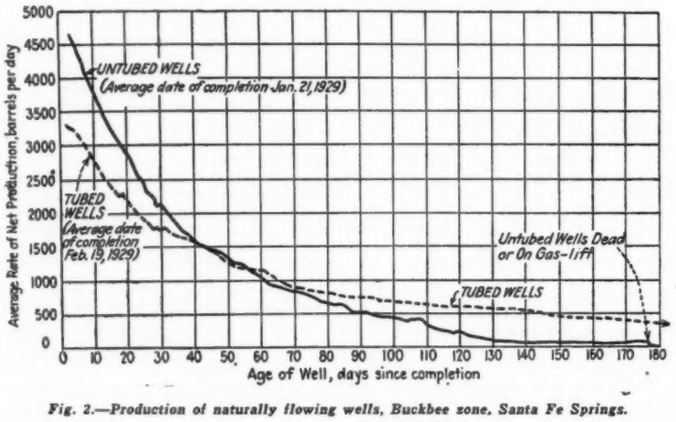
UNTUBED WELLS
(Average date of completion Jan. 21, 1929)
TUBED WELLS
(Average date of completion Feb. 19, 1929)
Untubed Wells Dead or On Gas-lift
TUBED WELLS
Average Rate of Net Production, barrels per day
Age of Well, days since completion

Fig. 2.—Production of naturally flowing wells, Buckbee zone, Santa Fe Springs.

WILDCATTING IN WASHINGTON REVIVED BY FIRST OIL WELL

By Dorsey Hager
Geologist

ABERDEEN, Wash., Feb. 27.—On November 21, 1931, an oil well, good for 10 to 15 bbls. daily at a depth of 805 feet, was reported by the Leslie Petroleum Co. at Hoh Head, Jefferson County, Washington. This well is in Section 12-26-14. The significance of this initial strike of a light grade oil in the State of Washington, must not be under estimated. The quantity of oil, while small (since, however, augmented to 50 bbls. by deeper drilling, five sands in all being found under 1,200 feet in depth) shows that free oil does exist in volume in the State.

The Leslie Petroleum Co.'s well, No. 1 Sims, is situated on top of a sharp fold. The geologists are in dispute as to whether or not the fold is faulted and questions are raised as to the age of the beds in which the oil is found, i.e., whether the oil comes from Miocene, Oligocene or Eocene beds. My own interpretation is that the oil most probably occurs in the topmost beds of the Oligocene system of Washington. Micro-paleontology should answer this question if diagnostic fossils can be found.

The Hoh Head structure is but one of many structures known in the State of Washington. It was drilled primarily because of the seepages found along the top of the fold. A light oil 39.5° Be. and with a so-called paraffin base has been known to occur in seepages for years. In 1914 a hole was drilled one-fourth mile southwest from the discovery well of the Leslie Petroleum Co. This well drilled to 1,120 feet. Oil and gas showings were found but nothing as marked in quantity as the finding in the present test. The quality of the oil is shown by the fractional analysis below.

The finding of oil in commercial quantities in the Leslie Petroleum Co.'s well has stimulated other drilling and a number of tests will be undertaken in 1932. Already the Vincent Oil Co. has started a rotary hole 10 miles northeast of No.

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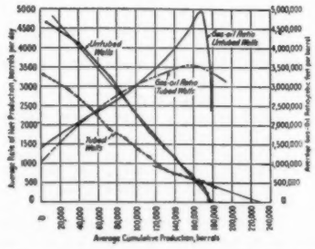
Untubed Wells
Gas-oil Ratio Untubed Wells
Gas-oil Ratio Tubed Wells
Tubed Wells
Average Rate of Net Production, barrels per day
Average Cumulative Production, barrels

Fig. 5.—Production of naturally flowing wells, Buckbee zone, Santa Fe Springs. Information as on Fig. 2 on a cumulative basis, with gas-oil ratio curves from Fig. 4.

Presented before the Petroleum Division, American Institute of Mining and Metallurgical Engineers, Houston meeting.

*Production engineer, General Petroleum Corp. of California.

†Assistant production engineer, General Petroleum Corp. of California.

Intensive Search for Hidden Pools

Growing Scarcity of Anticlinal Type of Structure Makes a Change in Geological Technique Necessary. Lessons From East Texas

By L. G. E. Bignell
Petroleum Engineering Editor

Because it is becoming increasingly hard to find the anticlinal type of structure in the various oil provinces that give much promise of being developed into oil fields of major importance, there will be a change in geological technique applied to future exploration for new oil pools. The study that has been devoted to the geological principles of the East Texas oil fields has further indicated quite clearly to the geologists that there will of necessity be a change in the methods followed in locating oil fields in the future.

To secure new supplies of oil the industry must give much more detailed attention to regions wherein possible oil pools may be hidden and to outline their positions by direct deductions from intensive geological study of the area and the application of all the now known methods of oil prospecting.

Immediate shortage of oil is not imminent. It will require some time to develop the new technique to its full working requirements. It therefore seems a propitious time to bring this general matter to the attention of the industry and for it in turn to begin to give detailed consideration to it if a period of shortage of available oil, that can be secured at costs in keeping with the general trend of all business, is to be averted.

At a price oil can be secured, but if the cost is too high it will be reflected in the costs of finished products and if their prices are too high it will tend to invite competition from substitute products which in turn will jeopardize the present position held by the petroleum industry.

To outline the now apparent trend of future geological work this article has been prepared, based largely upon notes furnished by A. I. Levorsen, consulting geologist, Tulsa, member of the Geological Society of America, the American institute of Mining Engineers, and the American Association of Petroleum Geologists. The ideas expressed are concurred in by a large proportion of the petroleum geologists and therefore should correctly outline the general trend of applied geology to the problems of the petroleum industry.

Geological Methods

The science of petroleum geology as it is now practiced in the United States, says Mr. Levorsen, is concerned chiefly with the structure of the rocks as a guide to the location of oil and gas deposits. The geological departments of nearly all of the American oil companies have been built up and supported financially on a rather strict application of the anticlinal theory to the problem of finding new oil fields. Thus, surface mapping, subsurface, plotting well logs, sampling and microscopic determinations, paleontology, core drilling, and geophysics have all had as their chief objective the determination of the relative structural elevation of one locality as compared with that of a neighboring locality. Other things being equal, an area of high structure offers a better chance for obtaining oil or gas than one of low structure. As a profession, therefore, the petroleum geologist has largely confined his efforts to the structural relations of oil fields. The idea has been sold so favorably to the oil industry that in most oil centers the expression that a wildcat well is "running high" becomes the last word in expressing a favorable opinion as to its possibilities for oil production.

During the development of our present day petroleum geology, the geologist has been faced with the fact that a large and substantial part of the oil production of the United States was obtained from the so-called "shore-line" pools. Production in fields of this type was localized more by the boundaries of the producing horizon than by any local structure. Sometimes the boundary of the pools was due to the truncation of the producing sand during a period of erosion, at other times it was due to a graduation of the sand into shale, while at other times it apparently represented the edges of ancient river channels. In every case, however, the edge of the sand was of first importance in localizing the oil pool. Among the fields of this type are included the Coalinga, Sunset, Midway and Torrance Fields in California, the Burbank, Glenn and many smaller pools in Oklahoma; the Rainbow Bend, Fox-Bush, and the "shoe-string" pools of eastern Kansas; the Bradford Field in New York and Pennsylvania; the Clinton gas field in Ohio; and by far the most important of all, the East Texas Field.

Few, if any, of the fields of this type were discovered through any scientific application of the principles of geology. As a matter of fact, most geologists believed that the location of such pools would have to always remain a matter of chance, and as a consequence, very few geologists gave much serious thought to the problem. The sporadic attempts of geologists to finance exploratory work on the basis of "shore-line" reasoning in general met with an indifferent response on the part of the oil business. As a consequence, they turned to the more popular "anticlinal" reasoning and kept busy looking for "structures."

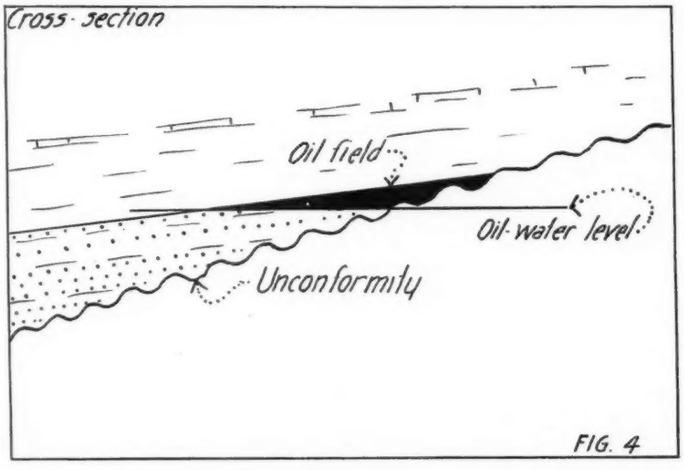

Figure 4—Overlapping sand member type pool.

East Texas Develops New Thought

The discovery and development of the East Texas Field has had, however, a profound effect upon geologic thought. Due to its great size and economic importance and also to the slackening of work in other areas, geologists throughout the United States have been studying the field intensively. The conditions surrounding the occurrence of oil in the East Texas Field are becoming better known every day with the result that there is probably more hard thought being given to the "why" of this occurrence than to any other field in the history of the oil business. Such study and thought is certain to bear fruit. The study of the conditions under which oil occurs in East Texas, and the comparison of these conditions with those under which oil occurs in other similar type fields is furnishing a set of criteria which will ultimately prove as accurate and useful in the discovery of new fields of this type as have the criteria which have been developed and proven successful in discovering anticlinal accumulations. In other words, the geologists are going to find other areas in the United States and throughout the world which offer the same reasons for exploration as have been found to have been effective in the East Texas Field.

While it is difficult to estimate the amount of production obtained in the past from the "shore-line" pools, it has been a substantial part of the total. There are all gradations from fields of a strictly domal or anticlinal type with a blanket sand over the top, as the Salt Creek Field of Wyoming, to fields of no local structure where the configuration of the sand with respect to the regional structure has localized an oil field, as in the Glenn Pool of Oklahoma. It is Mr. Levrosen's opinion that possibly a third of the production of the United States can be definitely referred to the "shoreline" classification. If this has been the case in the past, it is certainly true that for the future the ratio will be reversed. Producing anticlines, domes, fault structures and terraces are becoming increasingly more difficult to find as most of them have been found and have been explored to the lowest possible producing horizons. It therefore seems that the bulk of the future oil of the United States will come from the so-called "shoreline" pools at the increasing expense of the strictly anticlinal pools. It is a foregone conclusion that with the same time and effort applied to the study of the "shore-line" type of pools as has been given to the study of the anticlinal deposits, that the petroleum geologists will develop a group of sound scientific reasoning which will lead to the successful exploration for oil in this type of occurrence. Thus a new and broad field of activity awaits the geologist.

Factors Influencing Exploration

The general principle of the occurrence of oil in the East Texas Field and fields of similar type is but a special phase of the anticlinal theory. The oil has moved up the dip into as high a portion of the containing horizon as possible. In the fields of this type, the edge of the pool is marked by the edge of the sand or producing horizon and the sand may have an edge due to any one of several causes. Thus, in the East Texas Field, the Woodbine formation and

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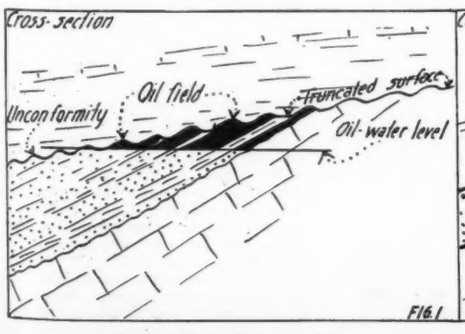


Figure 1—East Texas type field.

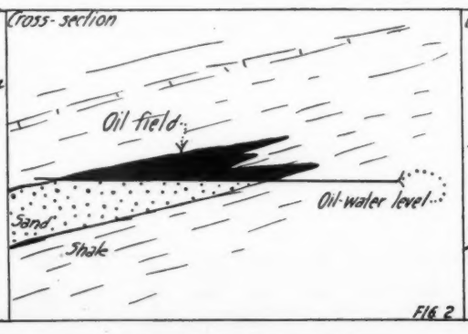


Figure 2—Glenn Pool type field.

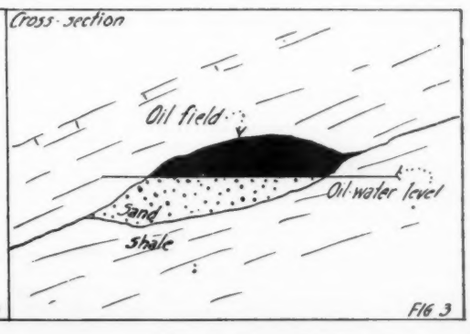


Figure 3—Shoe string fields.

Sand Conditions Set Gas-Oil Ratios

Reservoir Characteristics and Production Rate Have More Effect on Gas-Oil Ratio Than Any Form of Manual Control

By John T. Hayward
Petroleum Engineer, Barnsdall Oil Co., Tulsa*

There is a belief nowadays that a low gas-oil ratio increases ultimate recovery, holds back water, and tends to reduce lifting costs. Methods for controlling and reducing gas-oil ratios at producing wells have consequently been given a lot of attention during the last few years.

During the same period, the rate of production of wells in a number of pools has tended to be fixed by proration agreements rather than by the maximum capacity of the well.

It appears, at times, as if a misconception has crept in regarding the possibility of controlling the gas-oil ratio on

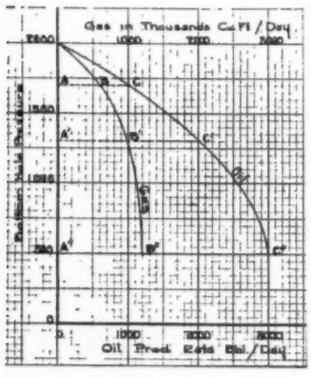


Figure 1

any well required to produce steadily at a predetermined rate.

It is a curious fact that while the opinion is general that rate of withdrawal, and not the equipment used, governs the water-oil ratio, a similar opinion regarding the gas-oil ratio is not so commonly admitted.

It is the writer's belief that where the production of a well is fixed by proration or other requirement at some figure less than the potential or maximum capacity, the gas-oil ratio will depend only upon the rate of production, and be independent of the method of production, and of the design of equipment in the well; that if no change in the rate of production is contemplated, efforts directed to improving the gas-oil ratio by altering the diameter of the flow string, changing the position of the choke, assisting the flow with gas-lift or pump, etc., are foredoomed to disappointment. This standpoint is not new. It was, for instance, stated by Hallan N. Marsh and Bruce H. Robinson in 1929[1], but it does not appear to be generally accepted.

The rates of flow of oil and gas into the base of an oil well depend upon the following:

The characteristics of the oil and gas.

The characteristics of the underground reservoir.

Temperature and pressure conditions in the reservoir.

The back pressure held against the face of the sand.

Laws Governing Gas-Oil Ratio

In the operation of producing a well, the only one of the above conditions over which we have any control through procedure followed and equipment used above the sand, is the back pressure at the face of the sand. Strictly speaking, the back pressure varies over the face of the sand owing to the difference in head caused by the vertical thickness of the sand, but where the total thickness from which production is being obtained in a well, is small compared with the depth, the following laws are submitted as true and self-evident:

1. At any well the rate of oil production depends upon the back pressure held on the face of the sand. The gas production rate will also depend upon the back pressure. It follows that at any stage in the life of the well there will be a definite rate of gas production, corresponding to each possible rate of oil production, and that, therefore, the rate of production determines the gas-oil ratio.

2. It is only the relative rate of production of the fluid, and that part of the gas that exists as free gas at the prevailing bottom hole pressure, that may be controlled by varying the rate of oil production. At wells where there is no free gas at the bottom of the hole, there will be only one possible gas-oil ratio, and neither the method nor the rate of production can alter it.

The relation may be shown graphically. Figure 1 shows oil and gas production plotted against bottom-hole pressure. At any rate of oil production the gas-oil ratio is given by $\frac{A\ B}{A\ C}$, $\frac{A'\ B'}{A'\ C'}$, etc., and in Figure 2 this ratio is shown plotted against production. The type of well selected in this hypothetical case shows a decreasing gas-oil ratio with increasing production. S. F. Shaw[2] has reasoned that decreasing gas-oil ratio with decreasing back pressure is to be expected, and has shown that this relationship exists in a great number of cases. Another very common type of well, is that in which the gas-oil ratio is constant over a very wide range of production. East Texas wells fall into this latter category. Recent tests at a number of wells in the Gladewater-Longview-Kilgore triangle, observed by the writer, showed no variation in gas-oil ratio at rates of production varying from 3 to 160 bbls. an hour. This relation follows as a necessity, whereas, in that region, there is no free gas at the bottom-hole pressures covered by the tests. Figure 3 shows some test results at a typical well in this East Texas area.

Classes of Wells

The majority of wells all over the world probably fall into one or another of the above catagories, namely, decreasing gas-oil ratio with increasing rates of production, or constant gas-oil ratio over a wide range of production rates. Another, but rarer, type of well shows a decreasing ratio as the production rate is increased up to a point, followed by an increase in the ratio at the higher rates of production. Figure 4 is attached as an example of this type. These three classifications cover, it is thought, practically all commercial oil wells. In all three cases there is only one gas-oil ratio for any given rate of production, and the method of production, or the type of equipment used, does not enter into it.

It must be admitted that a large amount of test data purporting to show that alterations in the design of the flow col-

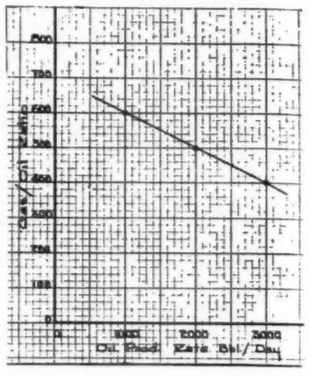


Figure 2

umn, position of the choke, etc., affect the gas-oil ratio has been brought forward. Most of this, the writer believes, can be cleared up by close examination and it is considered worthwhile to discuss here a few of the possible sources of misunderstanding.

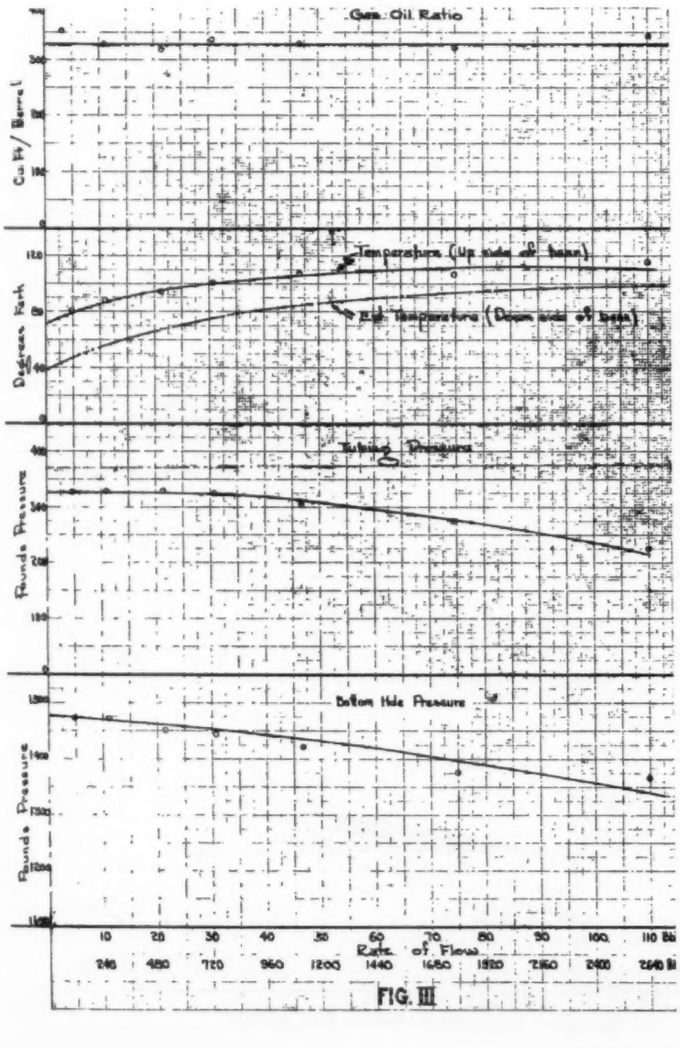
In this paper "rate of production" means the actual rate during small increments of time, not the average rate over long periods. It is not contended, that for a given monthly flow it makes no difference to the gas-oil ratio whether the well is flowed at a constant rate, or by heads. At the same time it is suggested that this matter has less effect on the ratio than it has sometimes been credited with. It, obviously, has no effect on the type of East Texas well referred to in Figure 3, or at any well at which there is no free gas at the bottom of the hole at the pressure prevailing there. It is possible that some of the differences recorded, can be traced to the difficulty of measuring gas-oil ratios accurately, when the production fluctuates over a wide range.

The writer's attention has been called to cases of wells that at one time had a certain gas-oil ratio when flowing through casing, and another when flowing through tubing. These discrepancies, when investigated, usually resolve into cases of widely differing rates of production, or tests made at widely separated periods of time.

Determining Ratio

Other cases are found to be due to the method of measuring the ratio, or rather to a lack of a generally accepted definition of what is meant by gas-oil ratio. Large apparent, but unreal, differences may be introduced when ratios are compared, unless the separation was carried out at atmospheric pressure, or unless a suitable correction was applied to compensate for any deviation from atmospheric pressure. Figure 5 exhibits a correction curve intended for use in East Texas, and prepared from a number of tests at varying trap pressures. It will be seen that at 80 pounds pressure, only

(Continued on Page 84)



*Before New York meeting, A.I.M.E., February, 1932.

[1] "Means of Controlling Gas-Oil Ratio," by Hallan N. Marsh and Bruce H. Robinson, A.I.M.M.E., New York meeting, 1929.

[2] S. F. Shaw, "Increasing the Ultimate Recovery of Oil," Tulsa meeting, A.I.M.M.E., October, 1930.

Restricted Crude Market Irks Producers

Present Cutting Down Process, However, Surest Way to Stabilization of Industry, Says Standard Oil Co. (N.J.)

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Mar. 1.—The American petroleum industry, which years ago, under the stimulus of rapidly expanding consumption, passed through its "growing pains" with little discomfort, is finding itself confronted with a more painful ordeal as it goes through the "contraction process," leaders of the industry aver semihumorously, as they comment on present economic conditions in the industry.

The rapid development of consumption of petroleum products has been accompanied by an equally aggressive trend toward more efficient methods of production and refining, with the third important division of the industry, the marketing branch, lagging behind in effectively doing its job. The result is seen in the present condition of oversupply of both crude petroleum and refined products, with a refining industry overexpanded and technical developments coming so quickly upon the heels of earlier improvements as to render obsolete or semiobsolete equipment that but a few years ago was the last word in refining machinery.

The basic problem, that of reducing top-heavy stocks, has been taken in hand by the industry and although its policy of curtailment has struck a few snags and set-backs, the campaign, on the whole, has shown satisfactory results thus far.

The feature article in the forthcoming issue of "The Lamp," organ of the Standard Oil Co. (New Jersey), goes into the petroleum stock discussion in some detail. This article considers the supply problem from the standpoint of both the producer and refiner, and points out that while the producer at present is experiencing a temporary "squeeze," due to enforced curtailment of his production as well as lessened demand for crude oil, the present process, while painful, is in reality the shortest cut to stabilization of the industry.

Handicaps of Stocks

"One of the great handicaps under which the petroleum industry has struggled in recent years," says The Lamp, "is the carrying of excessive stocks of crude oil and finished or partly finished products. Accumulation of this surplus was hardly perceptible at first because operators had become accustomed to violent fluctuations in current supply. Therefore, when stocks began to pile up at storage farms and terminals they attracted little attention, since it was felt on the basis of previous experience that at almost any time production might again fall below current consumption and make these stocks most useful in meeting the deficit.

"A number of significant changes in this respect took place without attracting general attention. In the first place, the business of producing oil and of discovering new pools became less haphazard. Increasing knowledge on the part of the geologist, better instruments for his guidance and the discovery that Texas was a hitherto unsuspected storehouse of vast quantities of oil, all made it less likely that the industry would again enter a period when for a long time it would have to depend upon stocks above ground to supplement daily production from the wells. On the other hand, the refiner was constantly bettering processes to the end that he might get a larger percentage of the desired products from his crude and throw less of it into the residue to be sold in competition with coal. This reduced the quantity of crude required. Then, too, the situation was changed as the United States more nearly approached the saturation point in the operation of motor vehicles. This meant a diminishing rate of the annual increase in demand for gasoline and motor oil.

"Before these changing factors had become fully evaluated the industry had saddled itself with a problem of carrying more than 700,000,000 bbls. of crude and products in steel tankage and pipe lines. Oil is a rather expensive commodity to store. It consumes a great amount of capital in carrying charges on the investment—ordinarily estimated at about 25 cents a barrel for new storage and about 15 cents after the first year.

"The industry kept these stocks intact for a long time, thinking that consumption would overtake demand and enable the owners to draw upon the accumulation at a profit over their cost on the books. The discovery of the East Texas Pool, following several minor developments of the same character, made this hope seem remote, and efforts have since been made to reduce current production through proration and the stoppage of unnecessary new drilling to a point that would create a demand for part of the stored oil. All things considered, the industry has done pretty well in this respect while meeting the difficulty of flush production in Texas, Oklahoma City and Kettleman Hills. At this writing it appears that the country's stocks of 668,000,000 bbls. held on January 1, 1931, were reduced to 622,000,000 bbls. on January 1, 1932—a total draft for the year of 46,000,000 bbls.

Jersey's Position

"The Standard Oil Co. (New Jersey) interests have been in the fullest sympathy with all efforts looking either to the curtailment of new fields or to the reduction of storage stocks, and have co-operated to the fullest extent with the industry in reducing both current production and stocks. As a result the company entered 1932 with the lowest stocks of crude oil it has held since 1922. In fact the stocks now are but little more than half what they were as recently as January 1, 1925. The stocks of products carried at the company refineries and terminals were also materially decreased in 1931.

"This is not an unmixed blessing, at least in the eyes of many producers who have been outspoken in their criticisms of the unwillingness or inability of large purchasers to take all of their production. With some justification they argue that having reduced their taking of crude under proration, in the general interest, it is double punishment to find they cannot sell all of their allowable production. They think that no draft should be made on storage while prorating is in force.

"Economic conditions are against such a policy. The possessor of stored crude has capital tied up when new money is hard to borrow. With his products, if he is a refiner, selling at record low prices, and with banks calling for reduction of loans, the owner of stocks has no choice between converting crude oil already paid for into money, or providing more capital to supply his needs entirely from current production. Hence he draws upon his storage. The producer can find comfort in the thought that the present policy is the shortest cut to stabilization of the industry. Until stocks are reduced it is unlikely that prices for current production can be restored to a profitable level, and the producer is relatively no worse off in the process of readjustment than the refiner and marketer."

Other prominent oil executives, in private discussions of current problems in the petroleum industry, have echoed the sentiments expressed by the New Jersey company, the general impression being that although sufficient progress has already been made in reducing stocks to justify the belief that the earning power of the industry will be somewhat improved this year, continued pressure for the retarding of crude production and refining activities must be exercised if these gains are to be held and further progress made.

Three Groups Discuss Their Problems

Company Engineers, Sales Engineers and Purchasing Agents Give Joint Consideration to Common Problems in Oil Country Buying

By L. G. E. Bignell
Petroleum Engineering Editor

At the regular monthly meeting of the Tulsa Purchasing Agents Association the relationship between oil company engineers, sales engineers and purchasing agents was discussed, led by B. P. Sibole, vice president of the Stanolind Pipe Line Co., Tulsa, for the company engineers; by A. M. Butcher, purchasing agent for the Indian Territory Illuminating Oil Co., Bartlesville, Okla., for purchasing agents, and by W. D. Moorer, sales engineer, Moorlane Co., Tulsa, for the sales engineers.

A. M. Butcher stated that any project requiring mechanical equipment that must be designed by mechanical or electrical engineers needs the aid of the sales engineer in describing it to the company engineer and the purchasing agent. As a preliminary and important step in the introduction of equipment into the oil industry a well planned advertising campaign working through established trade journals is essential.

Both company engineers and purchasing agents make it a point to carefully read advertisements of equipment and supplies, Mr. Butcher said, and if interested will write for further information, and in this way will acquaint themselves with the fundamentals of the equipment under consideration. This paves the way for a visit by the sales engineer and will save time in getting to the essence of the sales talk.

After a consultation with the company engineer and the purchasing agent, Mr. Butcher recommended that quotations be made only to the purchaser, while approximate prices be given the company engineer. This process is desirable because it is, in the last analysis, the duty of the purchasing department to keep record of all prices and purchases, and it is not essential that detailed quotations be given the engineering department.

The engineering department will pass upon the design and quality of the apparatus under consideration, rather than upon the price, and after making its recommendations to the purchasing department the negotiations can be carried to a conclusion by the purchaser.

Following this general routine a great amount of good can be done, and this may be supplemented by general conferences from time to time between company engineer and buyer wherein matters of company interest are discussed frankly and completely. New articles recently advertised can be studied and one department or the other can secure additional information by writing the manufacturer for it. This can be done without implying obligation on the part of the oil company for the advertisement has been run for the purpose of opening the way to further development of inquiries only if the desire for conference is expressed by the company engineer or purchasing agent, the speaker said.

The Company Engineer

B. P. Sibole said that the three departments under consideration should form a triangle with equal sides, the strongest known form of structure. This triangle should be a compliment to another triangle within the company organization made up of the company engineer, purchaser and the executive. By such a set-up it is possible for details of all types of equipment and supplies to be thoroughly disseminated from the manufacturer to company executive. Mr. Sibole pointed out that by such a set-up the sales engineer need not fear that his story would not reach the executive of the oil company, and at the same time he need not offend either the purchaser or the company engineer by going direct to the executive with his proposition.

Mr. Sibole also stated that the proper use of advertising served to break the ice of the manufacturer and proved a direct means of delivering the message to those who might be interested. Advertising is a means of saving time and duplication of effort and in modern business is recognized as quite as essential as following up inquiries so developed by the use of sales engineers.

Engineering has so far developed that it is unnecessary to consider essentials in discussions between sales and company engineers, and this permits the sales engineer to proceed directly to the basic facts of his arguments and build up his case from them.

The first question to be asked of the sales engineer is, "Where has this equipment been used?" This question is based on the principle set forth by Mr. Sibole that in the arts creative methods prevail, whereas in engineering, buying or selling, the method usually applied is to follow along developed lines. The modern engineer can take the handbooks of his profession and go ahead from there and in this way ascertain basic facts.

In making reference to other companies using a certain type of equipment it will be found that information will be freely given because there has been developed a spirit of co-operation between oil companies and they are quite willing to state frankly their experiences with material or supplies they have used. This permits the seller to answer the above question in a very direct way and also for the buyer to gather infor-

(Continued on Page 84)

Broadens State Control of Gas Rates

United States Supreme Court Upholds Inquiry Into Pipe Line Charge in Determining Cost by Distributor

WASHINGTON, D. C., Feb. 29.—The supreme court today upheld action of a three-judge federal court decision, refusing to grant the Western Distributing Co., a subsidiary of Cities Service Co., an increase of gas rates in Eldorado, Kans.

Involved in the case was the right of a state commission to directly or indirectly fix the price which shall be charged by a pipe line company for gas. The court's decision favors the state commission.

The high court's decision, read by Justice Roberts, holds that a utility purchasing gas from an interstate pipe line company must show that it is paying a reasonable price before it can get an increase in local rates.

If the state commission did not have the power to determine the reasonableness of the pipe line charge great injustice could be caused, the court said.

This rule, the court emphasized, does not give the state commission power to fix the charge of the Interstate Pipe Line Co.

Court's Opinion

Justice Roberts' opinion said:

"Having in mind the affiliations of buyer and seller and the unity of control thus engendered, we think the position of the appellees is sound, and that the court below was right in holding that if appellant (gas company) desired an increase of rates it was bound to offer satisfactory evidence with respect to all the costs which entered into the ascertainment of a reasonable rate.

"Those in control of the situation have combined the interstate carriage of the commodity with its local distribution in what is in practical effect one organization.

No Arms Length Bargaining

"There is an absence of arms length bargaining between the two corporate entities involved, and of all the elements which ordinarily go to fix market value.

"The opportunity exists for one member of the combination to charge the other an unreasonable rate for the gas furnished and thus to make such unfair charge in part the basis of the retail rate."

Regarding the showing made in other proceedings that a 40-cent wholesale rate was reasonable, the decision declared the commission was not bound by prior decisions, but was free to decide what would be reasonable at Eldorado.

The claim that negotiations had been conducted between the wholesale and the distributing companies to procure a reduction in the wholesale rate the court said "means little in the light of the fact that the negotiators are both acting in the same interest—that of the holding company which controls both."

The argument that to comply with the commission's demand would involve an extensive and unnecessary valuation of the pipe line company's property and an analysis of its business did not impress the court.

It said that in view of the relations of the parties and the power they enjoyed arbitrarily "to fix and maintain costs as respects the distributing company which do not represent the true value of the service rendered, the state authority is entitled to a fair showing of the reasonableness of such costs."

Oklahoma Comment

Chairman Paul Walker of the Oklahoma Corporation Commission said a supreme court decision in the Eldorado, Kans., gas case disclosed the Oklahoma regulatory body had been right in its rate case rulings.

The commission's ruling in the Lone Star and Community Natural Gas rate cases, now being concluded contrary to the utilities' contentions, was affirmed, Walker said, by the court decision, which upheld the power of a state commission to inquire into reasonableness of costs of gas in determining fairness of rates to consumers where the distributing company buys its gas from an affiliated interstate pipe line company. The Lone Star Gas Co. is a pipe line company and the Community Natural is a distributor.

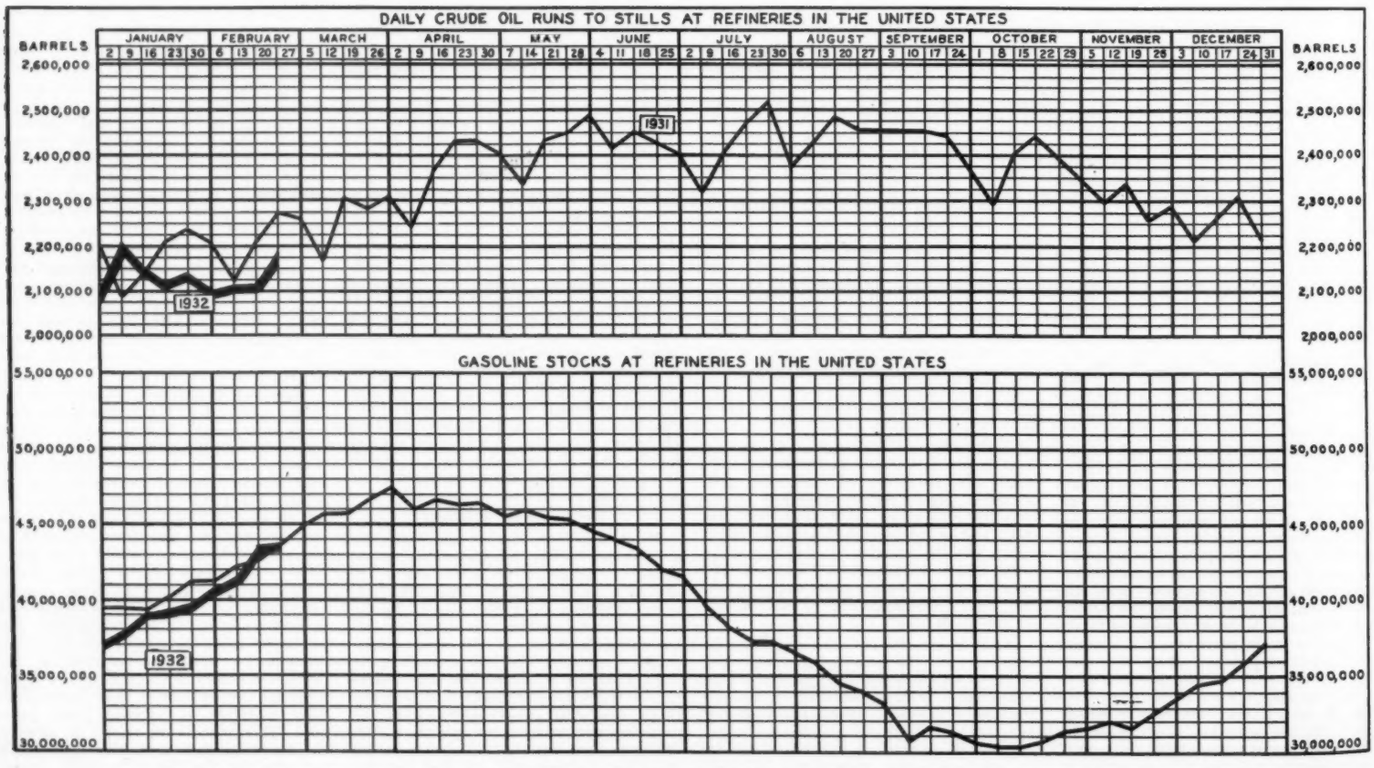
Although a formal order has not been prepared, the commission last week demanded a reduction of at least 20 per cent in rates of the concerns. Gas rates and properties of the Consolidated Gas Service Co. in Watonga were detailed before the commission in hearing on application of 20 towns for lower rates.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending February 27:

	Week ending February 27, 1932				Week ending February 20, 1932				Week ended February 21, 1931			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	458,600	6,363,000	6,887,000	100.0	448,000	5,923,000	6,881,000	100.0	450,700	7,745,000	7,331,000
Appalachian	91.8	92,600	1,770,000	1,167,000	91.8	92,300	1,718,000	1,183,000	93.8	91,600	1,408,000	1,063,000
Indiana, Illinois, Kentucky	98.9	261,700	5,760,000	4,678,000	98.9	279,700	5,448,000	4,756,000	97.5	272,600	4,983,000	3,054,000
Oklahoma, Kansas, Missouri	89.6	203,700	3,901,000	3,297,000	89.6	220,700	3,877,000	3,351,000	89.4	251,700	3,119,000	3,735,000
Texas	91.3	493,400	9,424,000	10,355,000	91.3	506,300	9,200,000	10,420,000	91.9	535,800	7,004,000	9,313,000
Louisiana and Arkansas	98.9	152,600	1,490,000	4,034,100	98.9	152,100	1,460,000	3,925,000	98.3	137,300	1,722,000	2,295,000
Rocky Mountain	89.4	38,300	1,999,000	693,000	89.4	37,400	2,007,000	702,000	93.1	47,700	1,816,000	971,000
California	97.1	441,800	14,860,000	96,125,000	97.1	453,900	14,159,000	95,991,000	98.8	483,000	15,811,000	101,310,000
Total United States	95.2	2,142,700	45,567,000	127,236,000	95 2	2,190,400	43,792,000	127,209,000	95.7	2,270,400	43,608,000	129,072,000
Texas Gulf Coast	99.8	389,300	7,478,000	7,754,000	99.8	381,600	7,300,000	7,606,000	100.0	399,400	5,739,000	6,933,000
Louisiana Gulf Coast	100.0	115,000	1,344,000	3,271,000	100 0	113,900	1,305,000	3,138,000	100.0	91,300	1,526,000	1,262,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) gas and fuel oil stocks.



All data based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above table.

Opportunity knocks

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ON THE LONG JUMP
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DRESSER COUPLINGS DOMINATE!

Building Mammoth Unit at Whiting Plant

Combination Equipment Will Handle 20,000 Bbls. of Crude Daily. Standard to Build Similar Units at Other Refineries

By Robert C. Conine

CHICAGO, Feb. 27.—The Standard Oil Co. (Indiana), largest refining and marketing organization of the Middle West, now has under construction at its Whiting, Ind., refinery what is said to be the largest combination skimming and cracking plant ever built. The single unit when completed will be able to skim and crack in one continuous operation, 20,000 bbls. of Mid-Continent crude oil daily.

Similar units of smaller capacity are to be built at the company's Casper, Wyo.; Wood River, Ill., and Sugar Creek, Mo., refineries in a program to secure maximum manufacturing efficiency and at the same time assure a larger output of high octane gasoline in line with the demand for improved motor fuels.

The new Whiting unit will convert the 20,000 bbls. of crude oil daily into 70 per cent gasoline with an octane rating of 70. The only by-products of the operation will be the refinery gas and a superior grade of fuel oil having a viscosity of around 150 to 200 sec. at 122° F. furol. Coke formation, according to engineers in charge of design, will be practically negligible.

Five Distinct Operations

The five distinct operations of this mammoth unit which combines topping of the crude oil, reforming straightrun gasoline and naphtha fractions, viscosity breaking of heavy ends and regular cracking are as follows:

1. The light virgin gasoline is skimmed off.
2. The heavy virgin gasoline is separated and reformed by cracking to improve its antiknock value and volatility.
3. The reduced crude oil is subjected to a viscosity breaking operation in order to reduce the quantity of fuel oil and to provide a cleaner charging stock for the principal cracking operation.
4. This pre-processed fuel oil charging stock is flashed to separate it into cracked gasoline, clean charging recycle stock, and fuel oil. The clean charging stock is separately cracked in another operation to give a maximum yield of high antiknock gasoline.
5. The various gasolines are blended together and stabilized, the motor fuel production representing 70 per cent of the Mid-Continent crude oil originally charged to the unit.

Some idea of the size of the Whiting unit may be gained from the fact that the volume of one of the two furnaces is 74,000 cubic feet, and the hourly heat energy which it is estimated will be released in this furnace is approximately 200,000,000 B.t.u.'s. The construction work is by M. W. Kellogg Co. of New York City.

At this time few details are available on the operation of the Standard Oil Co.'s new unit, although it is known that the extensive research and development facilities of the company have been occupied for some time on the design of installations to meet the raised standards of the industry. In a unit of this type the two fractionating towers and the separator or evaporator operate on waste heat. The column in which the fresh crude oil charge is topped is at approximately atmospheric pressure. In this tower two streams are taken overhead, a light fraction of about 325 to 350 endpoint straightrun gasoline, and a naphtha cut of 300-325 initial and 450 endpoint.

The topped crude from the tower passes to the cracking coils in the furnace where it is subjected to a pressure of 300 to 500 pounds and a temperature of 800° to 875° F. From these coils, the processed topped crude goes to the separator. The bottom of this fractionating column represents a separate compartment which receives the bottoms from the separator and from which the fuel oil is drawn to storage. The naphtha cut likewise goes into a set of coils in the furnace where it is reformed under pressure of 600 to 1,000 pounds and a temperature of 925° to 950° F. The stream then passes to the separator. A third set of coils in the furnace take a stream of recycle and fresh gas oil from the bottom of the second fractionating tower in which a pressure of approximately 100 pounds is maintained. The gas oil is an excellent charging stock of around 2 to 3 N.P.A. color. In the coils it is subjected to a pressure of 250 to 400 pounds and a temperature of 950° to 975° F., and passes on to the separator.

At the separator, where the various streams from the cracking coils converge, the overhead fractions which include the gas oil cut pass into the second fractionating column. Cracked gasoline and cracking plant vapors are taken overhead to the condensers and the gasoline recovery plant. In the final step the straightrun, low endpoint gasoline taken from the first tower is blended with the cracked gasoline from the second tower and run into the stabilizer unit where the finished product is a quick starting, nonvapor locking motor fuel of approximately 70 octane number. The fuel oil made as a by-product is of no little importance as it comes close to fulfilling the requirement for a low viscosity fuel of the highest B.t.u. value.

Refinery Capacity Large

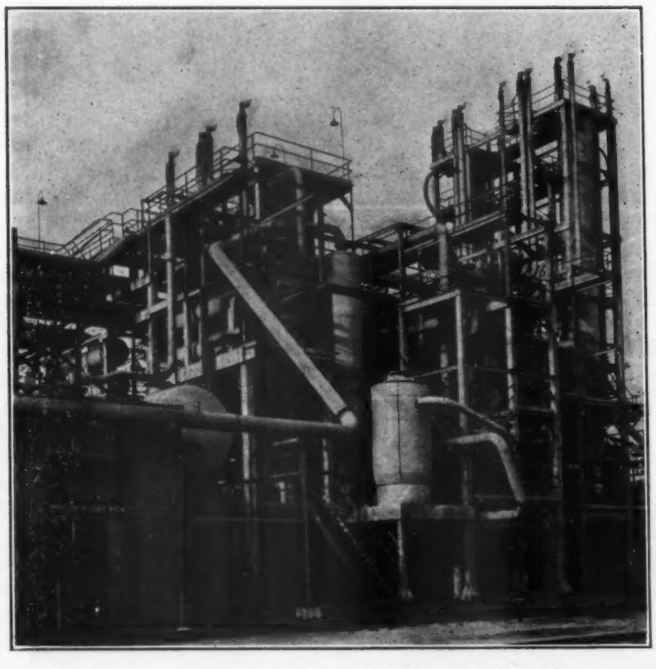
In point of refining facilities, the Standard of Indiana is among the first three or four in the petroleum industry. Only one Standard unit—the Standard Oil Co. (New Jersey)—exceeds the Indiana company in the combined crude oil and cracking capacity of its plants. The Whiting, Ind., refinery at which the new 20,000-bbl. unit is being constructed has a rated crude oil capacity of 75,000 bbls. daily. The present cracking capacity consists largely of the Holmes-Manley and the improved Burton units. The original Burton units installed at the refinery previous to the World War constituted the first major installation of the petroleum industry. Since that time through research and development, the company has made many improvements and enlargements in its cracking facilities.

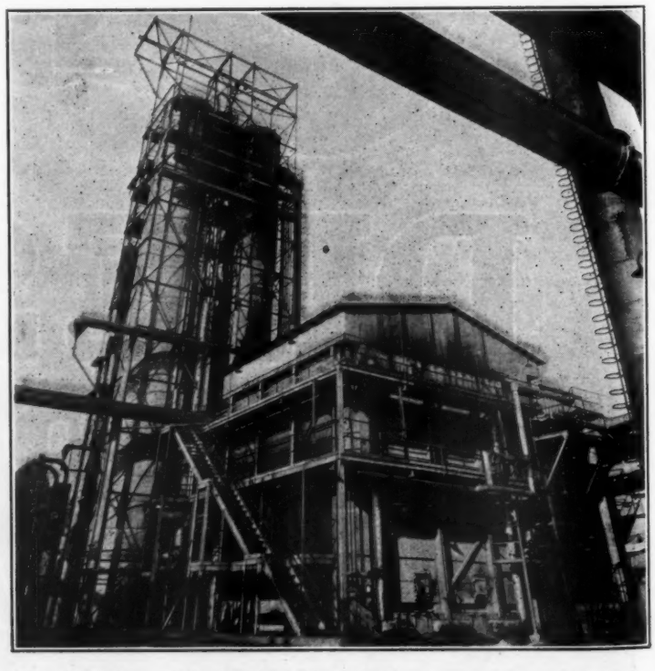
The Wood River, Ill., refinery of the Indiana Standard has a rated crude oil capacity of 25,000 bbls. daily and its Sugar Creek, Mo., refinery, 18,000 bbls. daily. Both of these refineries have Holmes-Manley and Burton cracking equipment.

The refinery at Casper, Wyo., which has a rated crude oil capacity of 65,000 bbls. daily is operated under the name of the Midwest Refining Co., an almost 100 per cent owned subsidiary of the Indiana Standard. Since the first unit was installed, the cracking equipment at the Casper, Wyo., refinery and other Midwest refineries located at Laramie and Greybull, Wyo., has been operated by the Indiana company. In recent years, the entire refinery of the Midwest plants has been in charge of the manufacturing department of the parent company.

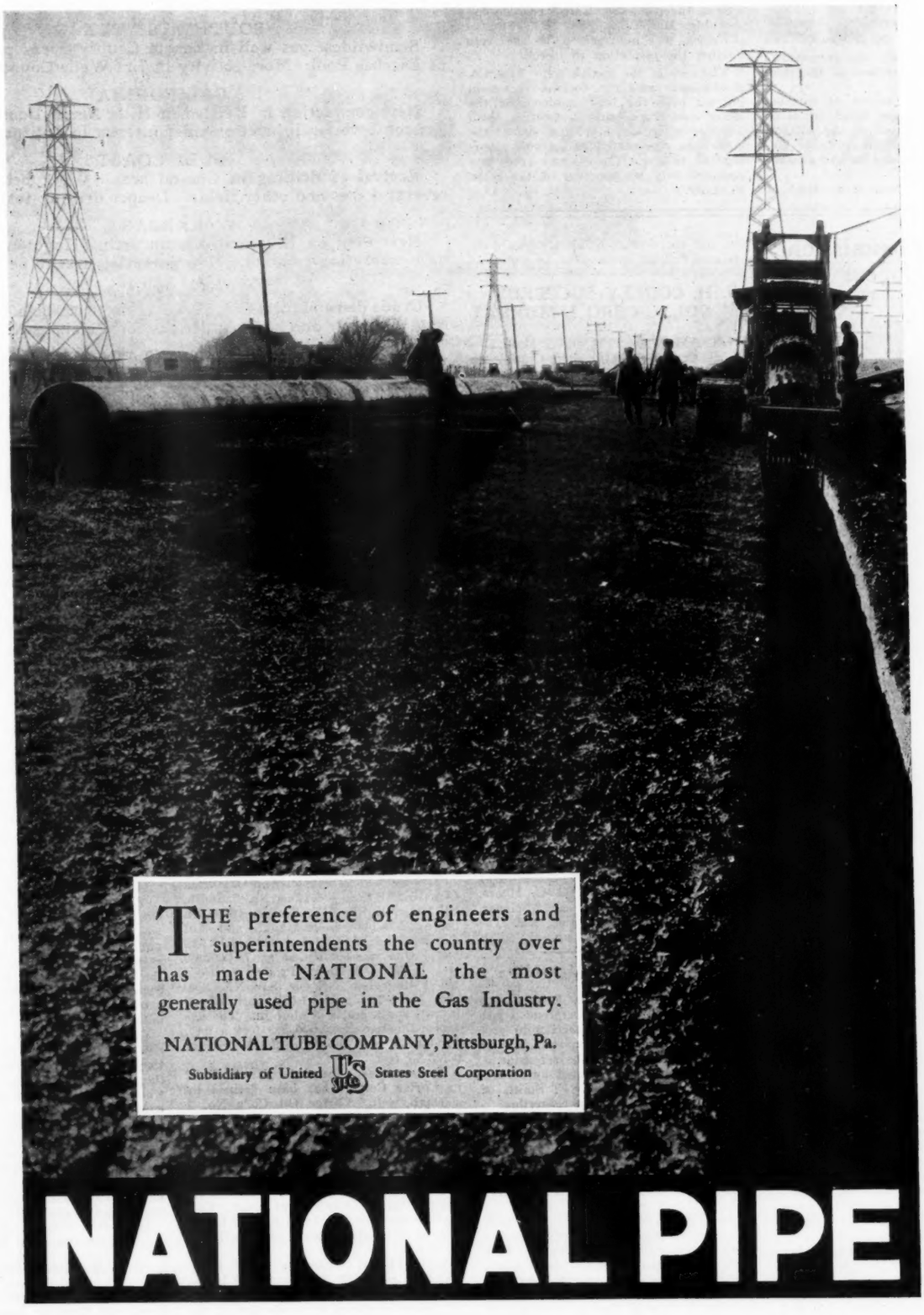
The action of the Standard of Indiana in increasing its manufacturing facilities is considered of special significance in view of the increasing importance placed on antiknock rating in marketing motor fuels. The Indiana company along with many other refining companies over the past year has materially increased the octane rating of its regular grade of gasoline. This month it announced an improved Standard Blue, which is the company's third grade marketed in all the important consuming centers of the Middle West and several states of the Rocky Mountain area. The company is also a large distributor of Ethyl Gasoline. The antiknock requirement rating on this gasoline was increased from 74 to 78 octane on March 1 thus necessitating a higher octane rating in the base gasoline.

SOME RECENT CONSTRUCTION AT WHITING, IND., REFINERY





(Left)—Large vapor recovery plant. This unit requires the entire steam output of four high pressure boilers. (Right)—One of refinery's mammoth pipe stills.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NATIONAL PIPE

PRAIRIE-SINCLAIR MERGER IS APPROVED BY STOCKHOLDERS

At a special meeting of the Sinclair Consolidated Oil Corp.'s stockholders in New York on Tuesday, March 1, a resolution favoring the merger of that company and the Prairie Oil & Gas Co. and Prairie Pipe Line Co., was passed and the action of the directors of the company approved.

Out of 5,983,844 shares of common stock, 4,665,860 shares voted in favor of the merger, and out of the 129,094 shares of preferred entitled to vote 95,443 shares were recorded for the consolidation.

More than 88 per cent of the stock of the Prairie Oil & Gas Co. was represented in the vote favoring the merger at the annual meeting of the Prairie Oil & Gas Co. at Independence, Kans., on Tuesday morning, March 1. Only 35,177 shares of stock was represented in the vote against the resolution to merge.

The vote of the Prairie Pipe Line Co. stockholders was the decisive factor in putting over the big combine. At the latter company's annual meeting, held Tuesday afternoon, 88.17 per cent of the stock was represented in the vote favoring the merger. The Kansas state law required only 80 per cent of the stock to ratify.

High Spots in Field News

NORTH LOUISIANA, ARKANSAS, MISSISSIPPI

Sabine Parish test holds interest. Difficulties in deep tests in Zwolle district. Wildcats planned in four states.

SOUTHWEST TEXAS

Semiwildcat gas well in Zapata County opens possibilities east of Escobas Pool. More activity in Jim Wells County.

CALIFORNIA

New completion in Kettleman Hills North Dome. Hearing on gas conservation injunction chief interest in California.

GULF COAST

Revival of drilling in Coastal area. Work being resumed on several domes and other fields. Deeper drilling feature.

KANSAS

New Pool on Ellsworth-Barton arch. Hugoton gas producers have marketing troubles. New potentials test to be taken.

OKLAHOMA

Crude demand increases. Production 18,000 bbls. per day greater. New allowable and new regulations for Oklahoma City Field.

ROCKY MOUNTAIN AREA

Hobbs Pool allowable reduced. Greasewood area in Colorado likely to see more drilling. Good producer in Osage Field extension.

WEST TEXAS

Southern Winkler County test shows for producer opening more territory. Unit test in Glasscock County and unitization block likely in Reeves County. Eleven locations in North Texas and two in Panhandle.

EAST TEXAS

Rains, making transportation impracticable, keep down locations and completions, dropping from 97 to 61 locations and from 97 to 76 completions compared to previous week. Railroad Commission again in control, with troops remaining pending appeal.

Ohio Tax Commission Answers Appeal With 20% Lower Valuation

The tax commission of the State of Ohio recently granted a 20 per cent tax reduction of existing valuations for tax purposes levied against oil production in Ohio. Oil producers headed by the Ohio Penn Grade Oil Producers Association had asked for a 30 per cent reduction and in support of their request presented a mass of facts and figures, which evidently made an impression on the commission.

The association opened its plea for a lower valuation as follows:

"Oil is produced in 60 counties in Ohio at the present time—oil may be found in the other 28 counties at some future time.

"There are more than 35,000 producing oil wells in Ohio. This is 11 per cent of all oil wells in the United States. There are more than 50,000 men employed in normal times in the industry, but, because of the deplorable conditions now prevailing fully half of these employes have been laid off.

"The highest taxed industry in the United States is the oil industry. Oil seems to be the prey of all tax levying bodies. The tax rate on oil production is more than 10 per cent throughout the country, while the taxes on urban land is 2.4 per cent, and farm land 1.6 per cent. Discrimination is the cause of discontent. The tax on gasoline in Ohio is 110 per cent. The average price paid the refiner at his plant for gasoline is 3¾ cents per gallon. The Ohio state tax is 4 cents per gallon. All taxes on the oil industry are charged ultimately to the producer by lowered prices for his product—crude oil.

"The present posted price for crude oil in Ohio is less than one-half the cost of production. In the deep sand fields of southeastern Ohio the posted price is but 40 per cent of the cost to the producer. A well in southeastern Ohio producing 1 bbl. daily net is taxed on $1,000 valuation at an average rate of 2½ per cent or $25. This well produces 365 bbls. of oil per year for which the producer receives $407—at the present price of $1.25 per barrel. The lifting cost for these 365 bbls. of oil per year paid by the producer is $1.75 per barrel or $639. This does not include depletion, depreciation, taxes or interest on his investment.

"Every barrel of Pennsylvania oil produced in the 17 counties in southeastern Ohio is not only given away, but a $2 bill is taken out of the producer's pocket and pinned to every barrel sold. Over the rest of the state in the other three fields, Corning, Lima and Wooster, the producer not only gives his oil away, but pins a $1 bill to every barrel sold at present prices. * * *

"Our plea is that you come to the rescue of the oil industry in this crisis and grant our request for a reduction of 30 per cent on present values levied against all oil production in Ohio. Help us stop abandoning oil wells; help us start the shooters and cleaning out men to work so we can recover more oil and call back the laid off pumpers and put them to work; help us continue to drill new wells and put the derrick builders, truck drivers and drilling contractors to work.

W. H. COOLEY SUCCEEDS COL. CICERO I. MURRAY

OKLAHOMA CITY, Okla., Mar. 1.—W. H. Cooley of Bakersfield, Calif., was elected chairman of the Oil States Advisory Committee today, and Cicero I. Murray executive director and attorney. The committee adjourned to meet at the call of the chairman in April.

The question of supply and demand of crude oil from the different oil producing states and of recommending the quantity of production each state should be permitted, was put over until the April meeting.

The matter of state compacts for the regulation of oil production was not settled as the full membership of the board was not present, and it was decided that all members should be made familiar with it before any action is taken.

Those present were: Cicero I. Murray for Oklahoma; Warwick M. Downing, Colorado; Van Welch, New Mexico; C. M. Cox, Wyoming; Kennamer McConnell, Ohio; Thurman Hill, Kansas, and W. H. Cooley, California.

S. O. CALIFORNIA WINS

LOS ANGELES, Calif., Feb. 27.—A decision favoring the Standard Oil Co. of California was handed down by the Federal Land Office in the case involving a $10,000,000 tract in Elk Hills which the Federal Government sought to recover. The decision was reported by Walter Spencer, registrar of the Federal Land Office. The disputed tract is described as Section 36, Township 30. C. C. Moore, United States general land commissioner, Washington, will review the case. The Government probably will appeal.

STERLING'S APPEAL FILED

WASHINGTON, D. C., Feb. 29.—A petition was filed in the supreme court today asking that an injunction to prevent the enforcement of martial law in the East Texas oil fields be set aside.

The petition was presented by former Gov. Dan Moody and E. F. Smith of Austin on behalf of Governor Sterling.

Moody and Smith will ask Justice Brandeis to issue an order staying the injunction until the highest court can pass on the appeal.

GASOLINE THIEVES CONVICTED

CASPER, Wyo., Feb. 27.—Ten persons arrested for stealing drip gasoline from oil companies operating in Salt Creek have been convicted in Casper. The investigation was started by the Wyoming committee on gasoline tax evasion, but it is said that no evidence of evasion had been found although the theft of gasoline was reported to have taken place on a large scale. The gasoline was retailed at 10 cents. The thefts were reported to have become so numerous that one company put liquid rubber in its drip gasoline to stop the leakage. The rubber turns solid in carbureters.

Late Fields

OKLAHOMA

Harris and Haun's No. 1 O'Neil, C NE SE, Section 18-28-1, Kay County, was drilled deeper to the Silicious lime at 3,346-49 feet, where it made 60 bbls. of oil an hour and 1,400 bbls. the first 19 hours. The old total depth was 3,241 feet in Wilcox sand where it was a gas well. The well is on property formerly owned by Tidal Oil Co. Production in the area is found in the Tonkawa and Wilcox sands.

Two wells were completed in Oklahoma City Field, Ocate Oil Co.'s No. 3 Smith, SE cor. NE SE NW, Section 15-11-3w, made 2,430 bbls. in two hours and shut down in the Wilcox sand at 6,410-6,510 feet. Gas was estimated at 78,000,000 feet a day. Refiners Production Co.'s No. 1 Buchanan, SE cor. SW NE, Section 10-11-3w, made 1,512 bbls. of oil in two hours and was shut in. The gas was estimated at 25,000,000 feet a day. Production was found in the Wilcox at 6,223-95 feet.

The northeast edge of the Tatums Field in Carter County has been defined by a small well. Carter Oil Co.'s No. 1 Lynn, C SW SE NE, Section 31-1s-2w, 2 miles from production, swabbed 170 bbls. of oil in 24 hours from the sand at 2,068-2,142 feet.

Amos Drilling Co. and others' No. 1 Short, SW cor., Section 18-1s-2w, Carter County, was drilling cement plugs. Casing was cemented at 1,846 feet on top of a series of sands showing oil from 1,852-2,015 feet.

B. F. Lundy and others' No. 1 Spragins, NE cor. NW SW, Section 8-1s-2w, is shut down at 2,500 feet. It is about 1½ miles northeast of production in the Tatums Field.

Prairie Oil & Gas Co.'s No. 1 L. Maxey, NE cor. SW NW, Section 1-8-6, on the northeast edge of Bowlegs Pool, in Seminole County, swabbed 42 bbls. after the oil rose 1,500 feet in the hole from the Simpson sand at 4,130-54 feet.

Minnehoma Oil Co.'s No. 3 Noe, NW cor., Section 17-9-6, West Seminole Field, ripped the casing at 2,691-96 feet in the Calvin sand and made 160 bbls. of oil and 2,200 bbls. of water in 24 hours.

Marshall Oil Co.'s No. 1 Buxton, SW cor. NE NW, Section 3-11-3w, in the Oklahoma City Pool, is one of the largest wells in the State. It flowed 4,100 bbls. in one hour before cutting the connections. The well has the 9-inch casing landed on top of the sand. Several times in the past it has cut connections while attempts were made to get a potential gauge.

KANSAS

The recent discovery well, Gypsy Oil Co.'s No. 1 Steckel, in Section 31-19-10w, western Rice County, is being put on the pump before taking a potential test. Oil rose 2,900 feet in the 6-inch hole from the Siliceous lime at 3,299-3,324½ feet. Some express the opinion it may be an extension to the Isern Pool, about 2½ miles south.

Gypsy Oil Co.'s No. 1 Lovett, SE cor. SW NW Section 24-19-2w, in the Ritz-Canton Pool, McPherson County, found the top of the Viola lime at 3,388-89 feet, where oil rose 2,000 feet in the hole. It will be drilled deeper.

Stanolind Oil & Gas Co. and W. C. McBride, Inc.'s No. 2 Lovett, C NE SW Section 13-19-3w, found top of the chat at 2,912 feet, with 9,500,000 feet of gas, and 2 bbls. of oil per hour at 2,981 feet. The showings will be mudded off and the test drilled to the Viola lime.

In Coffey County, Aikman and oth-

(Continued on Page 88)

MAGNETIC STORM

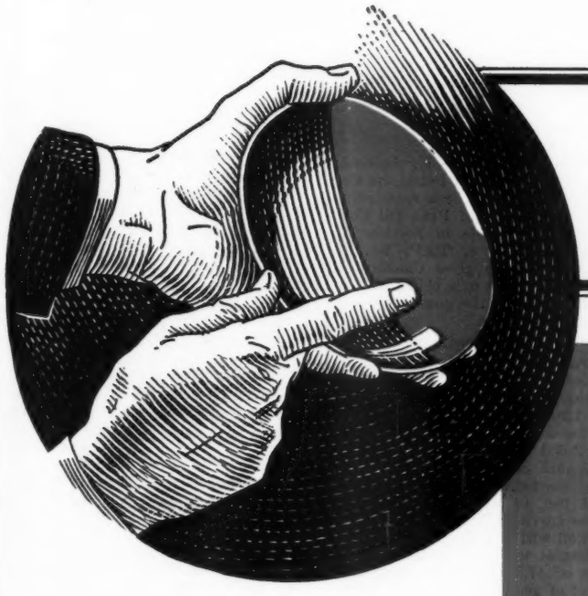
Tucson, Ariz., observatory of the U. S. Coast and Geodetic Survey report moderate magnetic storm starting at 9 a.m. (C.S.T.) on February 23 and ended at 4 p.m. (C.S.T.) February 25. The telegrams follow:

"Storm began twenty-third. Fifteen. Moderate."

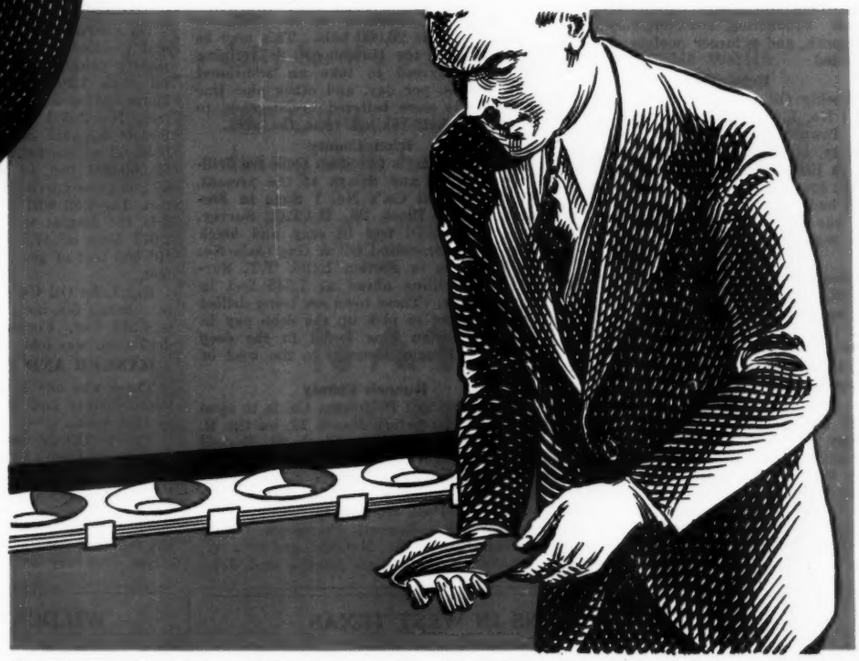
"Storm ended twenty-fifth. Twenty-two."

UNIQUE "SAUCER TEST"

proves RED-LEAD'S 4 *to* 1 *durability*



● Saucer used to make "Saucer Test" for paint durability. Made of steel, 5½ inches in diameter by ⅝ inch deep. Write for testing saucer and sample of red-lead. Prove to yourself that Dutch Boy Red-Lead is your property's best safeguard against rust.



● Dutch Boy Red-Lead is a fine, highly oxidized red-lead supplied in two forms—paste and liquid. The paste comes in natural orange red, is readily mixed to brushing consistency and can be tinted to darker colors. Dutch Boy Liquid Red-Lead (ready for the brush) is available in the natural orange red, two shades each of brown and green, and also in black.

● Here is an easy, practical method of determining the durability of paints for metal...a test that approximates service conditions and enables you to tell just which paint has the greatest wearing properties.

It is called the "Saucer Test" and was developed by railway maintenance engineers as a laboratory parallel to actual service conditions. In the "Saucer Test", the corrosive sulphuric acid reaction that takes place when cinders and moisture collect in the webs and pockets of metal structures, is closely simulated.

Small steel saucers are required to make this ingenious test. Half of each saucer is given a priming coat of Dutch Boy Red-Lead, and each of the other halves is painted with one of the other primers to be tested. Saucers are then filled with locomotive stack cinders and water, and placed in out-door racks for a period of months. Water is added as it evaporates, and the saucers checked regularly and performance of each paint noted.

The railroad has tested scores of priming paints with the "Saucer Test"...and in every case pure red-lead has won by a margin of at least 4 to 1! Another railroad has made a similar test with brine solutions...with equally conclusive results.

Red-lead has proved to be the most durable safeguard against rust whether caused by brine drip from refrigerator cars or by moisture and sulphur fumes.

If you would like to make the "Saucer Test" yourself...if you want to prove that Dutch Boy Red-Lead protects better—and longer—against the causes of metal destruction, we will gladly send you a testing saucer and a sample of Dutch Boy Red-Lead ready for the brush. Please make your request on your company letterhead.

LITHARGE of correct physical character and extreme chemical purity is a necessity in oil-refining. Such litharge is made by the makers of Dutch Boy Red-Lead and Dutch Boy White-Lead. You can always rely on its unvarying uniformity. Our nearest warehouse can give you quick shipment.

• • •

NATIONAL LEAD COMPANY

111 Broadway, New York; 116 Oak St., Buffalo; 900 West 18th St., Chicago; 659 Freeman Ave., Cincinnati; 820 West Superior Ave., Cleveland; 722 Chestnut St., St. Louis; 2240 24th St., San Francisco; National-Boston Lead Co., 800 Albany St., Boston; National Lead & Oil Company of Pennsylvania, 316 4th Ave., Pittsburgh; John T. Lewis & Bros. Co., Widener Bldg., Philadelphia.

DUTCH BOY RED-LEAD

Save the surface and you save all—Dutch Boy

Open New Territory in Winkler County

Unit Test Planned in Glasscock County and Possible Unitization Block in Reeves County. Eleven Locations in North Texas

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 29.—Sid Richardson and others' No. 1 Halley in Section 25, Block B-12, Public School Lands, southern Winkler County, is the feature of the week in the Permian Basin, the test showing for a producer and opening up more territory in this county, a county which has been on the dormant list for many months.

The test topped the lime pay at 2,810 feet, filled with fluid then slopped over: A fishing job has held up completion of the test for about two weeks. It is now ready to drill plug at 2,810 feet, and prepare to test. Six and five-eighths inch casing was cemented on February 24.

Gulf Production Co. has production on the Edwards and O'Brien ranch about 5 miles to the south, and the Hendricks Field is approximately 6 miles northwest. There is no chance for linking it up with the latter area due to two dry holes drilled on acreage lying between them. Sid Richardson abandoned a test this week on the Sealy ranch, 2½ miles to the southeast of the Halley test, making the Halley area look to be a small one in case the well proves a commercial producer. Production, however, may run to the south, and a larger pool proven than expected.

Ector County

Weekly Oil Corp., McCurdy and Casteel's No. 1 Cowden in Section 33, Block 43, Township 2s, T.&P. Survey, Ector County, is now down to 4,150 feet drilling in lime and bentonite, not having as bright appearances for making a producer as it had several places up the hole when gas was encountered, and small oil showings were logged.

Glasscock Unit Test

Penn Oil Co., California Co., Honolulu Oil Co., and Fuhrman Petroleum Corp. will spud their unit test by April 1, and plan to drill it to 3,500 feet. It is located in southwestern Glasscock County, approximately 18 miles southwest of the nearest production.

Water in Howard-Glasscock

At a meeting of Howard-Glasscock County producers in Fort Worth during the week it was brought out that more than 50 per cent of the wells in the western end of the field, producing from the 2,200-foot pay horizon, are making water. The water situation was discussed at length, and ways and means of eliminating it, and preventing encroachment were discussed, and plans made for experimenting for shutting it off.

George Sawtelle of the Kirby Petroleum Co., volunteered services of a crew and to pay the cost of such an experiment, and the Halliburton Oil Well Cementing Co. offered its services on one well. A representative of the company suggested that the cementing off of the water horizon be tried through tubing to save the expense of another string of pipe. Several producers recommended that 5⅛-inch casing be set with packers above and below the water level. If the latter plan was adopted, the casing would be cemented between the packers. The experiments are to be made and reports made at a later meeting.

Some of the operators suggested an increase in allowable to permit the producers to keep the water pumped from the pay. It was also suggested that wells higher on the structure should be given increased allowable to prevent water intrusion in the flank wells. Others argued that an increase in allowable would only hasten the intrusion of water.

The daily allowable of the field for February was 26,000 bbls. This may be increased as the Humble Oil & Refining Co. has agreed to take an additional 2,000 bbls. per day, and other pipe line companies were believed to be ready to increase their takings from the area.

Irion County

Irion County's two deep tests are drilling without any delays at the present. Plymouth Oil Co.'s No. 1 Sugg in Section 3,081, Block 28, H.&T.C. Survey, is below 6,570 feet in gray and black lime, and Stanolind Oil & Gas Co.'s No. 1 Williams in Section 1,195, T.T. Survey, is drilling ahead at 7,315 feet in black shale. These tests are being drilled in an effort to pick up the deep pay in the Ordivician lime found in the deep wells in Reagan County, to the west of Irion.

Runnels County

Blue Bonnett Petroleum Co. is to spud a test on or before March 11, on the R. M. McMillan farm in Block 22, Norvell Travis League, approximately 1,500 north of Magnolia Petroleum Co.'s No. 1 McMillan, the only producer left in the McMillan Pool, Runnels County.

The Blue Bonnett Petroleum Co. is composed of Mr. McCabe and W. W. Gruber, both of San Angelo, and John H. Castor of Dallas. The company has procured around 2,000 acres in this area, and obtained 67.94 acres from the Sun Oil Co. in the tract on which the test is to be located.

No. 3 McMillan is pumping around 60 bbls. of 42 gravity oil per day. A short pipe line to the railroad to the south carries out the production which is shipped by tank car. The Vacuum Oil Co. formerly owned the McMillan production, but when the company merged with the Standard Oil Co. of New York, the Magnolia Petroleum Co., subsidiary of the Standard, took over the operation of the lease.

Reeves County

Atlantic Oil Producing Co., Amerada Petroleum Corp., Magnolia Petroleum Co., and California Co. have been reassigning acreage in the vicinity of Penn Oil Co.'s No. 1 Bowles, dry hole in Section 36, Block 50, Township 8, T.&P. Survey, Reeves County, which gives the appearance of the unitization of a block of acreage in this area, and the possibility of a test in the near future.

Reagan County

On February 27, Group No. 1 Oil Corp. and Continental Oil Co.'s No. 1-B University gauged 310 bbls. of 46.5 gravity oil with 1,200,000 feet of gas for 24 hours ending 7 a.m. Total depth is 8,596 feet. No. 2-B University recovered 8,112 feet of 5⅛-inch casing. Well flowed 600 bbls. oil on one-hour open flow test, with 89,000,000 feet of gas. The oil tested 48.2 degrees gravity. Total depth is 8,740 feet. The well will be killed or tubed. No. 3-B, the deepest well in the field, gauged 2,975 bbls. of 47.5 gravity oil with 12,195,000 feet of gas. Total depth is 9,020 feet.

Big Lake Oil Co.'s No. 6-C University is running 5⅝-inch casing. Total depth is 4,391 feet. Former total depth before drill stem was lost was 4,810 feet.

RANGER AND WICHITA FALLS

There was one location staked in Palo Pinto County and one in Callahan County this week.

Prairie Oil & Gas Co. and Amerada Petroleum Corp. abandoned their No. 1 Bridges in the William Metcalf Survey, Palo Pinto County, at a total depth of 1,768 feet. It logged a broken sand at 1,705-12 feet and another at 1,758-61 feet, but failed to find pay from which a north offset discovery well is producing. The north offset is owned by the same companies, and is producing from the Edgin sand.

There were six locations staked in Young County, and three rotary tests for Archer County, in the Wichita Falls district. Pipe line runs for the district totaled 52,408 bbls. per day for the week, a drop of 672 bbls. in the daily runs from the previous week.

PANHANDLE DISTRICT

There were two locations staked in this district during the week, one in Gray and one in Hutchinson County. There were no completions reported for the week, one of the quietest in the district for some time.

Production in the Panhandle fell 1,803 bbls. per day this week, to 47,558 bbls., from a total of 1,948 producing wells, making an average of 24.4 bbls. per well.

COMPLETIONS IN WEST TEXAS

Howard County

Harrison's No. 1 Denman, top pay 2,735 feet, initial production 40 bbls., total depth 2,807 feet. American-Maracaibo's No. 3-A Settles, deepened from 2,266 to 2,481 feet, initial production 60 bbls. per hour swabbing.

Pecos County

Culberson Brothers' No. 2-A Monroe dry and abandoned, total depth 615 feet.

Reagan County

Big Lake Oil Co.'s No. 2-C University deepened from 8,609 to 8,840 feet, initial production 3,209 bbls. oil and 21,500,000 feet of gas. Group No. 1 Oil Corp. and Continental Oil Co.'s No. 1-B University deepened from 8,525 to 8,596 feet, initial production 305 bbls. oil and 1,220,000 feet of gas; No. 3-B University, deepened from 8,633 to 9,020 feet, initial production 2,227 bbls. oil and 11,762,000 feet of gas, gravity 47.8 degrees.

Ward County

Stanolind Oil & Gas Co.'s No. 1 Weiss, top pay 2,292 feet, initial production 163 bbls., total depth 2,415 feet. Shipley and others' No. 1 Monroe, top of lime 4,630 feet, shot 15 quarts 4,663-73 feet, initial production 60 bbls., total depth 4,673 feet.

Winkler County

Richardson's No. 1 Sealy, dry and abandoned, total depth 3,305 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Moore County

Canadian River Gas Co.'s No. 1-C Thompson, abandoned location.

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending February 29

Company, well, farm name, section and block—	Remarks—
ANDREWS COUNTY	
Fuhrman Pet. Co.'s No. 1 Boner, 1,320 ft. from N and 440 ft. from W, Sec. 34, Blk. A-43, P.S.L.	T.D. 1,120 ft.; running 10-in. csg.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	S.D. 1,935 ft.
R. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 1, G.C.&S.F. Sur.	S.D. 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 14, Blk. G-15, G.C.& S.F. Sur.	S.D. 2,900 ft.
Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 miles south Alpine	S.D. 1,750 ft.
COCHRAN COUNTY	
Penn Oil Co.'s No. 1 Slaughter, C Labour No. 80 of League 139, Carson County School Lands	T.D. 5,052 ft.
CONCHO COUNTY	
Beesley et al's No. 1 Waring Estate, 400 ft. from N and E, Sec. 163, T.&N.O. Sur.	S.D. 1,055 ft.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Ferner, 2,125 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and S.D.
CULBERSON COUNTY	
Harris-Hann's No. 1 Seay, 1,980 ft. from N and E of Sec. 16, Blk. 54, P.S.L.	Location.
Kornrumpf et al's No. 1 Garen, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land	S.D. 1,280 ft.
DAWSON COUNTY	
Albaugh et al's No. 1 Robinson, C NW, Sec. 46, Blk. M, E.L.&R.R. Sur.	To resume drilling.
ECTOR COUNTY	
Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W, Sec. 33, Blk. 43, Twp. 2s. T.&P. Sur.	Drlg. 4,150 ft.

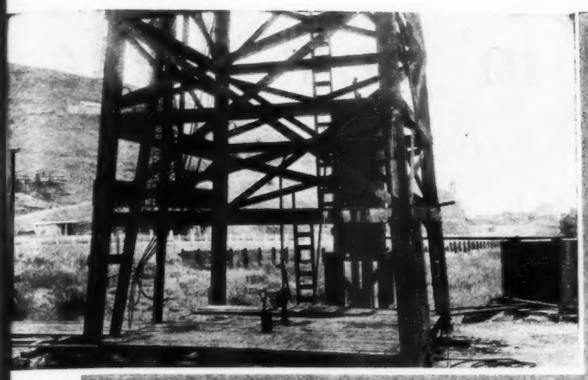
(Continued on Page 66)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending February 29

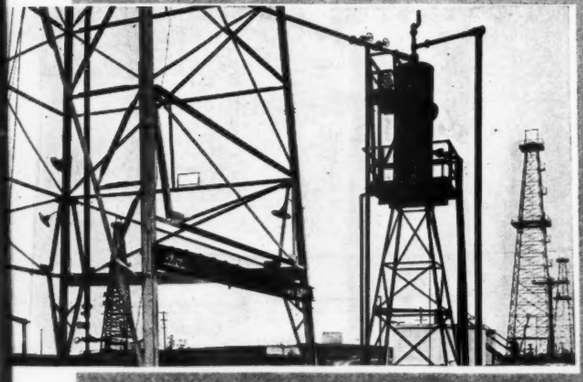
Company, well, farm name, section and block—	Remarks:
BRISCOE COUNTY	
Humble O. & R. Co.'s No. 1 C. Adair est., 2,500 ft. from N line and 2,100 ft. from E line of Sec. 7, Blk. G-6.	Spudded.
CARSON COUNTY	
Continental Oil Co.'s No. 4 Block, 330 ft. from N, 990 ft. from E, Sec. 111, Blk. 4, I.&G.N. Sur.	S.D. 2,391 ft. for csg.
H. A. M. Oil Co.'s No. 2 Cooper, 330 ft. from S and E Sec. 5, Blk. 9, I.&G.N. Sur.	Location.
Skelly Oil Co.'s No. 27 Schaffer, 1,265 ft. from S and 440 ft. from W, Sec. 88, Blk. 4, I.&G.N. Sur.	Rig.
Texhoma Nat. Gas Co.'s No. 1-S Burnett, center SE, Sec. 94, Blk. 5, I.&G.N. Sur.	Bldg. rig.
Texhoma Nat. Gas Co.'s No. 1-G Gore, 1,330 ft. from S and 1,327 ft. from W, Sec. 42, Blk. 4, I.&G.N. Sur.	Set 8-in. csg. 2,307 ft.
CHILDRESS COUNTY	
C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
COLLINGSWORTH COUNTY	
Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	S.D. 2,508 ft.
Downey et al's No. 1 Beasley, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur.	Rigging up.
DEAF SMITH COUNTY	
Western Union Oil Co.'s No. 1 Farwell, C NW, Sec. 18-3n-2e	S.D. 275 ft.
GRAY COUNTY	
Back & Barber's No. 1 Back, 660 ft. from S and 330 ft. from W, Sec. 140, Blk. 25, H.&G.N. Sur.	Underreaming 10-in. csg. 1,750 ft.
Boyes et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur.	Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur.	Drlg. 3,198 ft.

(Continued on Page 82)



3103 feet deep, and has been operating on a "JAT" Oilift Displacement Pump for over 3 years. Production—245 barrels of 25 gravity oil, cutting 10%.

5376 feet deep, and has been operating on a "JAT" Oilift Displacement Pump for almost 3 years. Production—240 barrels of 25 gravity oil, cutting 5%.



6330 feet deep, and has been operating on a "JAT" Oilift Displacement Pump for over 2½ years. Production—190 barrels of 34 gravity oil, cutting 31%.

4700 feet deep, and has been operating on a "JAT" Oilift Displacement Pump for over 2 years. Production—330 barrels of 27 gravity oil, cutting 3/10 of 1%.

"JAT"

TRADE MARK

PUMPING SYSTEM

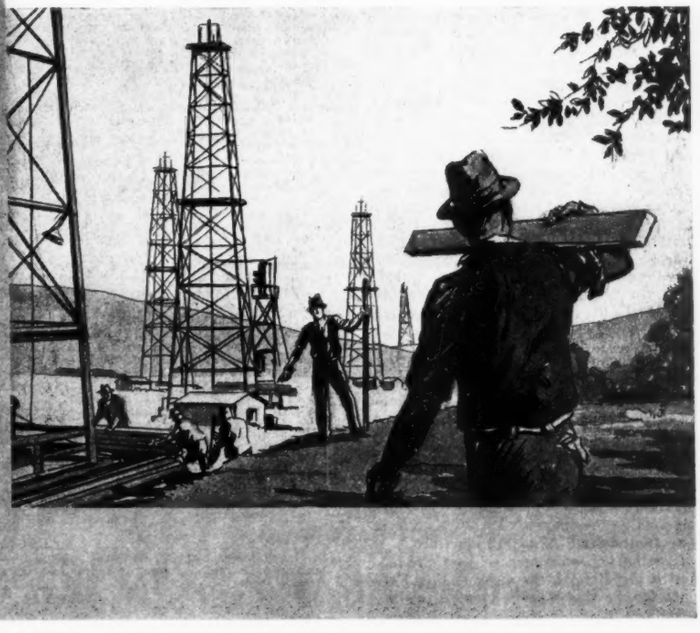
eliminates beam pumping equipment and the usual standard end of derrick.

"JAT" Pumping System is reducing lifting costs daily for the operators of these four wells.

"JAT" Oilift Displacement Pumps are now producing wells from 2000 to 8000 feet deep.

Descriptive Bulletin No. 90A sent upon request

THE NATIONAL SUPPLY COMPANIES



New Injunction Suits in East Texas

But Operations in Field Rocking Along Under Commission's New Order Same as Before Martial Law. Rains Hinder Operations

By L. E. Bredberg

DALLAS, Tex., Feb. 29.—After a week's uncertainty as to what was going to happen in and to the East Texas fields, things are "rocking along" about the same as they were before an injunction was granted to prevent the military authorities from molesting wells of two operators who sought the injunction. Twelve other operators have asked for a hearing for temporary injunctions to restrain enforcement of the Railroad Commission's orders on proration. Among the plaintiffs in the petitions are: Bill & Dave Oil Corp., Lide-Rowe Oil Co., Inc., Lide-Taylor Oil Co., Inc., all Louisiana corporations; Peoples Petroleum Producers, Inc., Imperator Oil Corp., The North Star Oil Corp., both of Texas; T. W. Murray, owner of six wells, and Whittle-Kavanaugh Corp.

The Wrather-Constantin leases are being produced according to the new 75-bbl. per well daily allowable set by the Railroad Commission in its new order, which also allows for the producing of wells seven days per week instead of six as many operators have been producing their wells in accordance with the Sunday shut down which was instituted in January.

Although the new order issued by the commission might have had the tendency to raise production 70 bbls. per well per week, and thereby raise production for the entire field, the production report ending Saturday showed a production of only 292,903 bbls. for the 24 hours, with 4,305 wells completed, and 4,120 wells reporting production. Pipe line runs for that period were 326,863 bbls., or 33,960 bbls. above production. On March 15 new wells will be considered and the field allowable distributed among them thereby cutting back per well allowable. Top production for the district is set at 325,000 bbls. per day.

Locations and Completions

Locations fell from 97 last week to 61 this week, and completions from 97 to 76 this week. Almost impassable roads and high waters were the cause. With approximately 320 wells being completed each month July 1 should see 6,000 wells completed in the field.

For the week ending February 24 there were 283 operations by major companies, and 354 operations of independent operators and smaller companies. The majors hold 79,498 productive acres in the district, and all others 20,502 acres. The Humble Oil & Refining Co. holds over 15,000 productive acres; Gulf Production Co. is second with over 8,500 acres; Shell Petroleum Corp. has almost 6,000 acres; Sinclair Oil & Gas Co. over 5,000 acres; Magnolia Petroleum Co. nearly 5,000; Sun Oil Co. and associates nearly 5,000 acres; Mid-Kansas Oil & Gas Co. has almost 4,500 acres; Tidal Oil Co. has 3,500 acres; The Texas Company over 3,000; Stanolind Oil & Gas Co. nearly 3,000 acres; and Atlantic Oil Producing Co. will have slightly over 4,000 acres when its purchase from Cranfill & Reynolds is consummated.

On February 24 major companies were actually drilling 109 wells, others were drilling 149. More locations and completions were being made by the independents and smaller companies than the majors.

Distribution Leads Production

Distribution continues to lead production in the district, the week ending February 24 showing a daily average production of 304,771 bbls., while pipe line runs, shipments by tank cars and shipments to local refineries totaled 312,987 bbls., a difference of 8,216 bbls. per day, and an increase of over 11,000 bbls. per day over the previous week's daily distribution. There is now slightly under 2,000,000 bbls. in storage in the district. This includes oil in lease storage, as well as that held in tanks on tank farms. Capacity in the district is almost 8,300,000 bbls., whereas oil in storage is a little over 1,942,000 bbls. For the past several weeks pipe lines have been withdrawing oil from storage in the district.

Another producer in the Gladewater area, western Gregg County, was arrested this week by military authorities for bypassing oil from his well and not accounting for the amount run from the well. Eleven other wells have been shut in and padlocked by the military authorities for producing more than their allowable, some producing through by-passes and the owners not reporting the amount produced.

Paraffin has given but slight trouble in East Texas regardless of the small allowable per well per day which would have a tendency to cause paraffining of the wells, and pipe lines have not been bothered during the winter months by paraffin, partially due to a very open winter, and at the present time, with the temperature around 60 to 80 and little chance for any freezing weather, paraffin troubles seem to have vanished for this year. Bottom hole chokes have a tendency to cause paraffining near top of tubing, but many of the company superintendents say they have had no worries in regard to paraffin.

Another Defining Well

Sorrells and others' No. 1 Brawley estate, in the western part of the Marshall Mann Survey, Upshur County, is another defining well on the northwest side of the field as it has failed to flow naturally, and only heads up when swabbed. It topped the sand at 3,746 feet and was bottomed at 3,753 feet.

V. Smith's No. 1 Alexander in the Mary Van Winkler Survey, on the eastern side of the Kilgore area, southern Gregg County, is the third well in the district to be shot in an effort to increase production. It was given a 90 quart shot from 3,540-70 feet, and filled up only 40 feet in 20 hours. Sand was topped at 3,515 feet in the well, and total depth is 3,570 feet.

Sinclair Gas Line

Field reports state that the Sinclair Oil & Gas Co. has made contract with Peyton Brothers and will lay a 6-inch line from its No. 1 Perry gasser in the L. N. Sparks Survey, southern Rusk County, to Sinclair leases to the north, the gas to be used in drilling wells. The Perry gasser made approximately 60,000,000 feet of dry gas when completed, and was the first dry gas well found in the field.

Since the completion of the Perry gasser, one other gas well has been completed in the southern tip of the Joiner area. Several other tests are now ready or are drilling in the area, which is the most interesting and the most active area of Rusk County, and the only area in the district yet undefined.

V. Clopton has staked a most interesting location in northeastern Cherokee County, on the southwestern side of the Joiner area, 1½ miles southwest of The Texas Company's No. 1 W. W. Henry producer. This location is on Shell Petroleum Corp.'s acreage, 40 acres of which was subleased to Clopton for a well, Shell retaining a one-eighth overriding royalty interest in the well.

There were two wildcats abandoned in Rusk County this week. A. W. Jones Oil Co., Trustee, junked and abandoned its No. 1 J. M. Grant in the T. J. Walling Survey. Total depth is 2,410 feet. Mrs. S. S. Thompson completed No. 1 Price in the H. Milhkin Survey for a dry hole at 3,280 feet in Georgetown lime, topped at 3,193 feet.

The South American Drilling Co. abandoned its No. 1 D. R. Boone in the Thomas Parmer Survey, Henderson County, at a total depth of 4,547 feet. It topped dry Woodbine sand at 4,371 feet. This has been an interesting test for the county and was closely watched all the way down.

EAST TEXAS DAILY AVERAGE OIL SHIPMENTS

Week Ending February 22

Through Main Trunk Lines

Company, size, location—	Amount
Arkansas P. L., 8-in., Shreveport	12,817
Atlantic P. L., 10-in., Atreco	16,458
Atlas P. L., 8-in., Shreveport	456
Gulf P. L., 2-8-in., Oklahoma	15,888
Gulf P. L., 2-8-in., Port Arthur	10,178
Humble P. L., 2-10-in., Shreveport	40,260
Humble P. L., 2-8-in., Todd	21,942
Liberty P. L., 8-in., Rusk	2,300
Magnolia P. L., 10-in., Center	21,879
Magnolia P. L., 12-in., Corsicana	15,829
Shell P. L., 10-in., Houston	21,077
Sinclair Texas P. L., 12-in., Teague	20,175
Sun-Yount Lee P. L., 10-in., Sun City	22,423
Texas P. L., 10-in., Douglass	32,766
Texas Empire P. L., 12-in., P. Arthur	42,744
Total	297,072

To Local Refineries

Arrow Ref., Overton	S.D.
Beacon Ref., Henderson	1,500
Boone Ref., Arp	475
Central Ref., Friars Switch	S.D.
Constantin Ref., Overton	S.D.
Diamond Ref., Overton	497
East Texas Ref., Longview	4,744
East Texas Ref., Friars Switch	2,942
Gladetex Ref., Gladewater	165
Gladewater Ref., Gladewater	360
Kilgore Ref., Kilgore	456
W. B. Mackey Ref., Gladewater	494
Overton Ref., Overton	610
Petroleum Refractionating, Longview	S.D.
Sinclair Oil & Gas, Longview	1,269
Slack Ref., Camp Switch	S.D.
Southern Oil Ref., Reed Switch	550
Taylor Ref., Tyler	1,755
Total	15,846

Shipments by Tank Car

Crown P. L. from Friars Switch	113
East Texas Ref. from Longview	145
Tyler P. L. from Tyler	443
Total	701

Total daily average distribution	313,619
Total daily average production	304,771
Daily average to storage	8,216

Lamar County Test

Doyle & Jondeau have staked location on the Horn farm in the R. P. Mayor Survey in Lamar County.

Harris & Russell have staked location 3 miles southwest of Henderson on the T. W. Harris farm in the W. G. Davis Survey, and have derrick up. This is in southern Rusk County.

Hopkins County Test

Grant Blanchard has assembled 5,000 acres in a block northeast of Hindman's No. 1 Lindsey test in the Alexander Albright Survey, and will probably drill a test. This block is in Hopkins County, and north of the producing area.

J. C. McFarland has moved a derrick on location staked in center of 40-acre tract in the W. Starr 96-acre farm, Cooper Survey, southeastern Upshur County. This test is 2 miles due east of the Cranfill & Reynolds northern extension well on the Rash estate in the Eubanks Survey, and will be an exceptionally interesting test for the area.

Several smaller lease purchases were made in the district during the week, and other small leases in the district have been sold from time to time.

Falls County

An outlet is being laid from Dixie Oil Syndicate, Inc.'s No. 1 J. Lee Davis, discovery well in northern Falls County, to the railroad at Gurley Switch and

(Continued on Page 83)

EAST AND EAST CENTRAL TEXAS WILDCATS

Week Ending February 29

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
C. R. Wilmuth et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S½ of 129-ac. tract, M. Main Sur.	S.D. 1,530 ft.

ANGELINA COUNTY

Holburt et al's No. 1 Long Bell Lumber Co., 150 ft. from S line and 200 ft. from E line of Sec. 9, H.&T.B. Sur.	Location.

BOWIE COUNTY

Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Chas. Lewis Sur.	S.D. 4,503 ft.
W. S. Langford's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	S.D. 1,880 ft.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur.	S.W. on D.S. test; S.D. 3,012 ft.

CAMP COUNTY

Monitor Oil Co.'s No. 1 G. L. Merrill, 3,400 ft. from N line and 6,900 ft. from W line of survey, E. Mathews Sur.	S.D. 4,109 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, H. Kimble Sur.	S.D. 1,000 ft.
V. Clopton's No. 1 A. P. Pace, 255 ft. from N line and 330 ft. from most northerly E line of 40-ac. lease, W. Dikes Sur.	Location.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Derrick.
Harper and Perkinson's No. 1 J. T. Lowery, 650 ft. from N line, 150 ft. from W line of Blk. No. 5 on a 139.6-ac. tract, 4 miles W of Troupe, C. B. Jennings Sur.	Rigging up.
Merry Bros. and Perini's No. 1 Annie Kelley, 330 ft. from N line and 443 ft. from E line of 393-ac. tract and 90-ac. lease, M. De Los Santos Coy Sur.	Rigging up.
Wilson & Stubbs' No. 1 L. Robart, 450 ft. from S and 150 ft. from W line of lease, J. B. Wolfin Sur.	S.D. 2,035 ft.

DALLAS COUNTY

Long Creek Dev. Co.'s No. 1 T. J. Lupton, center of 160-ac. tract, 3½ miles N of Mesquite, J. Johnson Sur.	Rigging up.
Paris' No. 2 Wilkinson, 2,787 ft. from NW and 3,341 ft. from SW of John P. Anderson Sur.	T.D. 1,230 ft.; S.D.
Joe Wilson's No. 1 fee, 600 ft. from N line and 600 ft. from W line of 1,500-ac. tr., Jno. Scroggs Sur.	S.D. 1,150 ft.

DELTA COUNTY

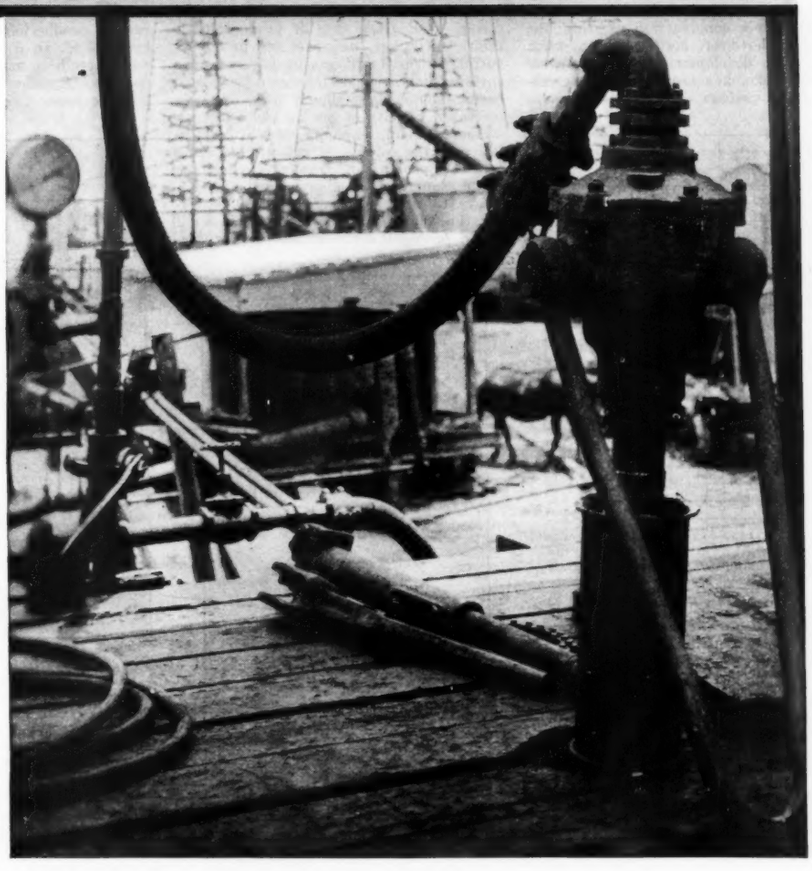
Worthington et al's No. 1 Pejernett, 776 ft. from S and 150 ft. from W in E. Chick Sur., 1½ miles W of Horton	S.D. 3,315 ft.

ELLIS COUNTY

Clark-Brooks' No. 1 C. W. Golliday, 300 ft. from S line and 300 ft. from E line of tract and survey, John Bones Sur.	T.D. 2,140 ft.

(Continued no Page 67)

BRING ON YOUR HIGH PRESSURE!



GOODYEAR Hy-Pressure Rotary Hose withstands extremely high pressures—handles them with ease and sureness.

Its specially compounded tube resists the abrasive action of the slush water and grit, and also such oil as may accumulate from tools or the ground.

It has an extra tough rubber cover, with lots of brute strength to combat abrasion, bumping against derrick standards, and the rough handling a hose has to take on a he-man job.

Goodyear Hy-Pressure Rotary Hose is specially constructed for rotary oil field duty and accurately specified to the job by the G. T. M.—Goodyear Technical Man. The G. T. M. is an expert on rubber, and a familiar figure in the everyday workings of the rotary field. His recommendations of Goodyear Hose and other Mechanical Rubber Goods are confidently relied on by many experienced drillers. To get in touch with the G. T. M., or for complete information about Goodyear Mechanical Rubber Goods for your service, write to Goodyear, Akron, Ohio, or Los Angeles, California.

TUNE IN:

Goodyear invites you to hear John Philip Sousa and his Band . . . Arthur Pryor and his Band . . . Revellers Quartet and Goodyear Concert-Dance Orchestra . . . every Wednesday and Saturday night, over N. B. C. Red Network, WEAF and Associated Stations

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GOODYEAR

BELTS • MOLDED GOODS • HOSE • PACKING

Development in Bottom-Hole Choking

Recent Field Experiments in Use of Removable Type Bean Indicate That Many Applications May Be Made in Oil and Gas Wells

By J. S. Ross
Petroleum Engineer, The Southern States Co., Inc.*

Although the opinion has prevailed for several years that bottom-hole choking under certain flow conditions should effect an increase in flow efficiencies, the use of bottom-hole chokes until recently has been limited in application mainly because of mechanical difficulties encountered in their construction. Within the past year, however, bottom-hole choking, through the development of a removable type of choke, has been applied successfully under various conditions of flow in many Mid-Continent fields. The observation of these field tests indicates that bottom-hole choking, although not applicable to all flow conditions, has an important place in the operation of oil and gas wells.

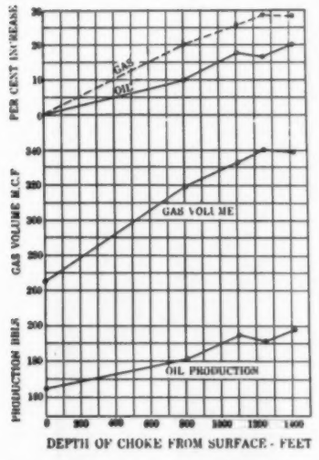


Figure 1—Chart showing the increased capacity of a one-fourth inch choke when set below the surface in a well located in the Yates Field, Texas.

This paper gives briefly the conclusions drawn from the data obtained from the experiments with this bottom-hole choke under various flow conditions, and a description of the choke and its operation.

Purpose of Bottom-Hole Choking

Since, in a normal well, the velocity with which the column of gas is moving generally has a direct bearing upon the quantity of oil it can lift, probably the main purpose of bottom-hole choking is to accomplish an increase in the velocity of this rising column, particularly in the lower portion of the tubing string. This it does first, by expansion of the free gas accompanying the oil; next, by liberation and expansion of some of the occluded gas normally carried in the oil to the surface; and lastly, by atomization, which results in a more intimate and uniform mixture of the oil and gas. It is apparent, then, that if this velocity, particularly in the lower portion of the flow string, at a given rate of production, is inefficiently low, owing either to an insufficient supply of gas or too excessive surface choking, and slippage takes place, bottom-hole choking should bring about an increased velocity of the gas and hence an increased lifting capacity. But if the velocity of the column of gas at this same rate of production through a surface choke alone is at or above a velocity necessary to lift the oil efficiently, increasing the velocity by bottom-hole choking would probably serve no useful purpose,

Pulling tool.

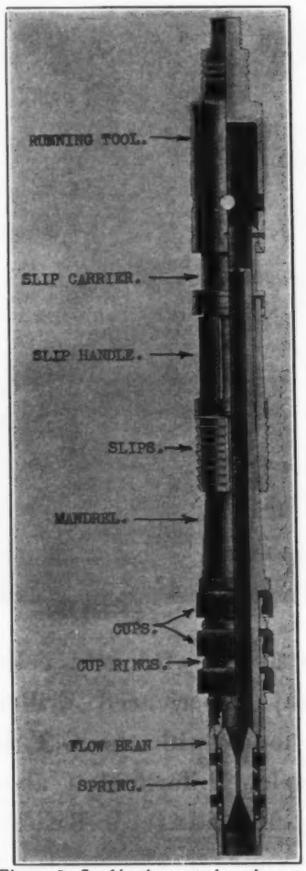


Figure 2—Combination exterior view and cross section of an Otis removable bottom-hole choke.

other than to steady the flow by the better mixture of oil and gas and to lower delivery pressures.

As would be expected from these assumptions, bottom-hole choking gives satisfactory results under conditions of low flow velocity caused either by an actual shortage of available gas in the reservoir or by excessive surface choking. Bottom-hole choking has not, however, apparently been successful in lowering gas-oil ratios in wells of comparatively high flow velocity.

The benefits obtained in wells of low energy or velocity are steadier flow, prolonged flowing life, and in some cases reduction in gas-oil ratios and increased rate of production. As an instance of steadier flow and increased rate of production, the flow from a heading well in the Yates, Texas, Field has been made steady and the rate of production has been more than doubled. Similar results in steadying flow have been accomplished in the Cisco, Ranger and Van Fields of Texas, with an appreciable increase in rate of production in one instance in the latter field. In a few instances pumping wells have been made to flow again. Large potential flowing wells which will not stand excessive surface choking without loading up and going dead have been made to flow steadily at rates of production as low as one-third of the rate at which surface choking alone caused the well to load up.

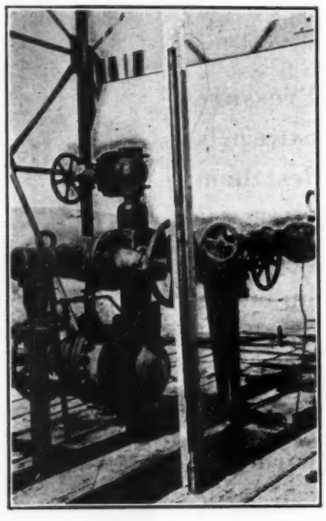


Figure 3—Template, or gauge tool, with part of a set of tubular jars, for running inside 3-inch tubing.

East Texas Tests

The East Texas Field, although in some respects a difficult field in which to handle bottom-hole chokes, should be materially benefited through their use. One recent installation in a well which is typical of a stage through which a large percentage of the wells in that field will pass will doubtless be of interest. This well, in the Joinerville area, after producing a large quantity of oil had reached the point where it would no longer flow without frequent swabbing. Pumping equipment had been ordered and was in transit when it was decided to experiment with a bottom-hole choke. The well was swabbed in through a one-eighth-inch choke set about 100 feet off bottom, and now, at the end of three weeks, is still flowing its allowable 185 bbls. daily with about 25 pounds pressure on the tubing head.

The function of the choke in this particular instance is thought to be principally that of releasing dissolved gas, this released gas acting instead of the edge water drive as the flowing agent in bringing the oil to the surface. There is more than sufficient energy in the form of dissolved gas in the East Texas oil to flow the wells, provided, however, that this gas is released and permitted to expand while in the lower portion of the tubing string. It is thought that the greater part of this gas in solution is released at a pressure of between 700 and 800 pounds. The few pressure-bomb readings made in connection with bottom-hole choking indicate a pressure of around 400 pounds immediately above the choke while flowing in the neighborhood of 200 bbls. of clean oil daily. In view of this, it seems entirely possible that this particular well can be made to flow until the bottom-hole working pressure has declined to at least 800 pounds.

Attempts have been made to reduce high gas-oil ratios by bottom-hole choking in a number of fields, notably, Raccoon Bend and Yates, Texas, and Hobbs, New Mexico, but the results were unsatisfactory. Probably this was due to the fact that in the type of wells tested the gas-oil ratio was the result of conditions in the reservoir or in the flow across the face of the sand, and that the quantity of gas given up by the sand with each barrel of oil was considerably in excess of that required to lift the oil to the surface. Under these conditions, appreciable reduction of gas-oil ratios by bottom-hole choking cannot be anticipated. However, if high gas-oil ratios are due to inefficiently low flow velocity in the tubing, such as is caused by excessive surface choking, reduction in gas-oil ratios may be expected.

Bean Diameters and Choking Depths

In the choking of wells with high gas-oil ratios, the proper size of bottom-hole bean necessary for a given rate of production often can be estimated fairly accurately, provided the bottom-hole pressure and well volume are known. In such wells, the quantity of gas produced is usually so much greater than that of the oil that the calculations for the proper diameter of bean can be based upon the physical laws of gas, allowance being made for the quantity of oil being produced and the amount of gas in solution in the oil at the existing pressure. Estimating the proper size of bean in wells with low gas-oil ratios is considerably more difficult, and the correct size so far has been determined by trial and by previous experience with similar wells. Experience has shown that the size of a bottom-hole bean for a given rate of production should be considerably smaller than the surface bean at the same rate of production. For example, in one test at Yates, Texas, a five-thirty-seconds-inch bottom-hole choke produced the same amount of oil as a three-sixteenths-inch

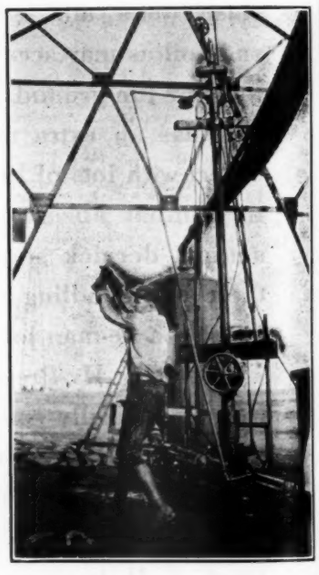


Figure 4—Lubricator for running choke in high pressure well, Oklahoma City Field. Man is shown in act of jarring.

*Before the Petroleum Division, A.I.M.E., Houston, Tex.

Flowing Life
already extended nearly

SIX MONTHS

with every indication that it will
be extended several months more

◆

Above is the report on the BOTTOM HOLE CHOKE installation in the Deep Rock Oil Company's W. W. Holland No. 1 Well, Joinerville area, East Texas. This well is surrounded by pumping offsets.

◆

OTIS REMOVABLE BOTTOM HOLE CHOKE

THE SOUTHERN STATES COMPANY, INC.
Shreveport, Louisiana

◆

◆ ◆ Installations made on trial basis ◆ ◆

surface bean. A three-sixteenths-inch bean, when placed in the bottom of the same well, produced 20 bbls. more oil daily than the surface bean of the same diameter.

The extremely small diameters that may be used in bottom-hole choking are illustrated in a recent test with beans ranging from three-sixty-fourths-inch to twenty-four-sixty-fourths-inch in one of the 4,000-foot wells in the Hobbs Field, and in another test with a one-thirty-second-inch choke in the Van Field. The three-sixty-fourths-inch bean at the bottom of the Hobbs well produced 60 bbls. of oil and 50,000 feet of gas per day, whereas the smallest size of surface choke tried on this well, a one-eighth-inch bean, produced 52 bbls. of oil and 43,000 feet of gas.

Use in Yates Pool

Changes in bean diameters within certain limits can be made in effect by raising or lowering the choking level. This is well illustrated in Figure 1, which shows the capacity of a one-quarter-inch bean installed first at the surface and then set at various depths in 2-inch tubing, in a well in the Yates Field. At the top of the chart is plotted the percentage of increase in production of the oil and of the gas for the different levels below the surface. The capacity of the choke increased fairly uniformly with depth, and at the bottom of the well, 1,420 feet, the volume of gas that passed through the one-quarter-inch choke had increased about 30 per cent and the oil 20 per cent over their respective amounts through the surface choke.

Although the most efficient results ordinarily should be obtained by choking at the bottom of tubing, the point at which full utilization is made of the expansion of the gas in the flow column, possibly there are conditions under which it may be desirable to choke at some other level in the string. It has been suggested that in wells with high fluid levels, possibly equal if not more satisfactory results may be obtained by choking just below the fluid working level and successively lowering the choking level as the fluid recedes. A series of tests on a well in Yates which flowed violently in heads indicated a critical point in the tubing about 600 feet off bottom where steady flow could be obtained by a three-sixteenths-inch choke. Possibly steady flow in this well also could have been obtained by choking on bottom with a bean of smaller diameter.

Surface and Bottom-Hole Chokes

Ordinarily, it is necessary to use a surface choke in conjunction with a bottom-hole choke if the most efficient flow condition is to be obtained. Since the function of the bottom-hole choke is to increase flow velocities through the release or expansion of gas, or both, it follows that under many conditions flow velocities may be thus increased beyond the efficient range with consequent excessive friction. In these cases the use of a few pounds of surface pressure will materially decrease the volume, and consequently the velocity, of the accompanying gas. Occasionally when it has been desired to flow very small quantities of oil through comparatively large tubing, the use of surface pressure apparently has been necessary to keep the gas-oil mixture in the foam condition nearly if not all the way to the surface. Instances have been found in which the type of flow could be changed, through variation of the surface choke, from one of violent heading to one of surging, and to one of steady flow—all without varying to any great extent the quantity of oil produced. The use of some surface pressure in East Texas probably is also going to be advisable as a method of reducing paraffin troubles. It is probable that bottom-hole choking under certain conditions will increase paraffin troubles in the tubing, but in most cases it should decrease these troubles in flow lines.

Bottom-Hole Working Pressures

There has been considerable speculation as to whether or not a higher bottom-hole pressure at a given rate of oil production is carried as a result of bottom-hole choking. It seems possible that under certain flow conditions bottom-hole choking may result in higher bottom-hole working pressures. Apparent reduction in percentage of water delivered following installation of bottom-hole chokes in some instances seems to afford some ground for this opinion. The matter cannot be settled definitely, however, except through the use of pressure bombs above and beneath the choke. Such a test was started recently, but was delayed by the undue haste of one of the field men and defective surface fittings. If it should be proved that a higher bottom-hole working pressure does result from bottom-hole

Well in Ventura, Calif., field where Otis bottom-hole choke is placed at 6,300 feet depth. Choke run in November, 1931, and is still in well.

choking in fields such as East Texas, the value of this method of operating will be greatly increased, of course.

Bottom-Hole Chokes in Gas Wells

The use of bottom-hole chokes has recently presented a new application in connection with the operation of gas wells, since their installation in siphons practically disposes of freezing difficulties and permits more efficient water removal.

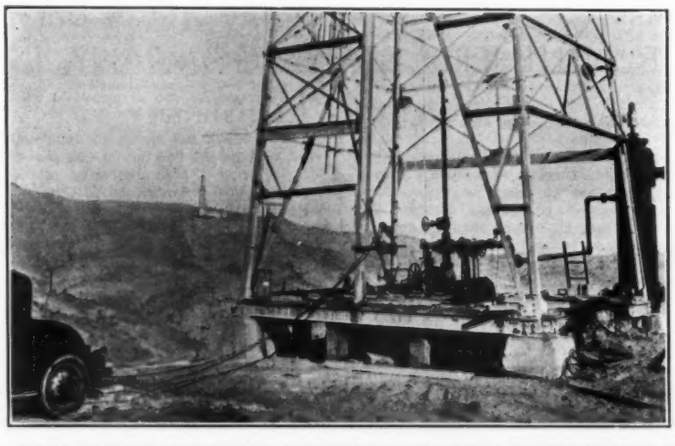
Bottom-hole choking has the advantage of the higher and more uniform year-round temperature underground and the smaller pressure drop across the bean owing to the weight and friction of the column of gas above the choke. An example of this application of bottom-hole choking to eliminate the freezing of surface control equipment, which is a serious problem in the operation of high-pressure gas wells, is a 3,000-foot gas well at Holdenville, Okla. This well had an open flow capacity of 14,000,000 feet and a shut-in pressure of 900 pounds per square inch. The daily withdrawal of gas, ranging from 500,000 feet in summer to 1,000,000 feet in winter, was too small to cause sufficient flow velocity at the existing tubing pressure to raise continuously the 5 bbls. of oil and water, which had to be blow daily through the 1¼-siphon into the atmosphere. A nine-thirty-seconds-inch bottom-hole choke, designed to pass the winter load requirements, was set at a depth of 2,920 feet, and additional choking was used at the surface to satisfy the summer withdrawal rate. Before the bottom-hole choke was installed, year-round use of a heater was necessary to prevent freezing. In a series of flow tests which were made on this well after the choke was installed, it was found that freezing difficulties at the surface choke were not encountered until the daily rate of withdrawal was restricted to about 250,000 feet, or to about 25 per cent of the capacity of the bottom-hole bean under the existing pressures. The use of the bottom-hole choke resulted also in the fluid being lifted continuously through the siphon at the various restricted rates of flow.

When the withdrawal of gas through a siphon is so restricted by surface choking that it is necessary to blow the siphon intermittently to atmosphere in order to rid the well of water, the use of a bottom-hole choke in some instances permits the continuous operation of the siphon. A typical example, chosen from a number of gas wells choked for this purpose, is a well in Eastland County, Texas, which was producing 75,000 feet of gas a day, together with from 6 to 8 bbls. of water, from a depth of 3,443 feet. Prior to bottom-hole choking, this well was operated against a back-pressure of from 200 to 250 pounds per square inch and was blown to the atmosphere once daily to remove the accumulated water. A one-sixteenth-inch choke, set at 2,140 feet, permitted the continuous withdrawal of gas through the siphon under a tubing-head pressure of about 9 pounds.

Gas Well Test

It was observed in field tests that when the working pressure of a well declined to a point at which its withdrawal could no longer be produced through a siphon because of the accumulation of fluid and the necessity of blowing the siphon intermittently to atmosphere, the use of a small-diameter bottom-hole choke, which under the bottom-hole pressure passed only enough gas to maintain an efficient flow velocity, permitted the continuous operation of the siphon against atmosphere with a minimum waste of gas. One well in the Richland gas field, Louisiana, had a working pressure so close to the line pressure that in order to hold its production it was necessary to blow the 2-inch siphon to atmosphere five times daily, with an estimated waste of about 1,500,000 feet of gas per day. The use of a one-eighth-inch choke in the bottom of the siphon permitted the removal of the water at a maximum daily loss of only about 100,000 feet of gas a day, and the continuous operation of the well at full capacity.

It is essential, however, when using a bottom-hole choke for this purpose, that a reasonably uniform working pressure be maintained on the well. If this pressure is permitted to rise beyond a certain range, an excessive amount of gas passes through the choke, while if the working pressure is permitted to drop, insufficient gas is introduced into the siphon and "loading-up" results. Under conditions of widely varying working pressures, making continuous operation of the siphon against atmosphere inadvisable, bottom-hole choking can still be made to serve a useful purpose in that to a certain extent it can be made to prolong the time between necessary blowings. Before a choke was installed in one such well, it had been necessary to let the well rock up to make the siphon "kick off" unless the siphon was blown every four or five hours. Following the installation of a bottom-hole choke, the siphon will "kick off" without having to permit the well to rock up, even after 24 hours. The function of the choke when used in this manner is to restrict the rate of entry of water into the siphon to a rate that will allow sufficient gas to enter with the water to aerate the latter and cause it to rise to the surface. When a siphon is blown dry and the surface valves are closed, the siphon quickly fills with dry gas to the working pressure of the well. This pocketed gas prevents the water which subsequently enters the well from entering into the siphon, causing it instead to build up around the siphon. When the siphon surface valve is opened to blow the siphon dry, this accumulated head of water rushes into the siphon, and in many cases at such a rate that little opportunity is given for gas to enter with it. If, however, that siphon is equipped with a bottom-hole choke, the rate of entry of the accumulated head of fluid upon the opening of the surface valve is restricted in proportion to the bean diameter, allowing more time for gas to enter and to mix with the water.



Well in Kettleman Hills, Calif., producing through Otis bottom-hole removable choke.

Recent Development

The use of permanent beans in the bottom of tubing is impractical because they cannot be changed or removed without pulling the entire string. Adjustable beans, designed to be operated by manipulating rods or tubing from the surface, while possessing certain desirable features, have not proved entirely satisfactory because of mechanical difficulties present in any device so extremely sensitive to diameter changes, when these changes are attempted from the surface.

A recent development is a removable bottom-hole choke, which is run and pulled under pressure on a steel measuring line and which may be set at any desired level in a string of tubing. Briefly, this choke is a slip-packer arrangement containing a replaceable positive bean.

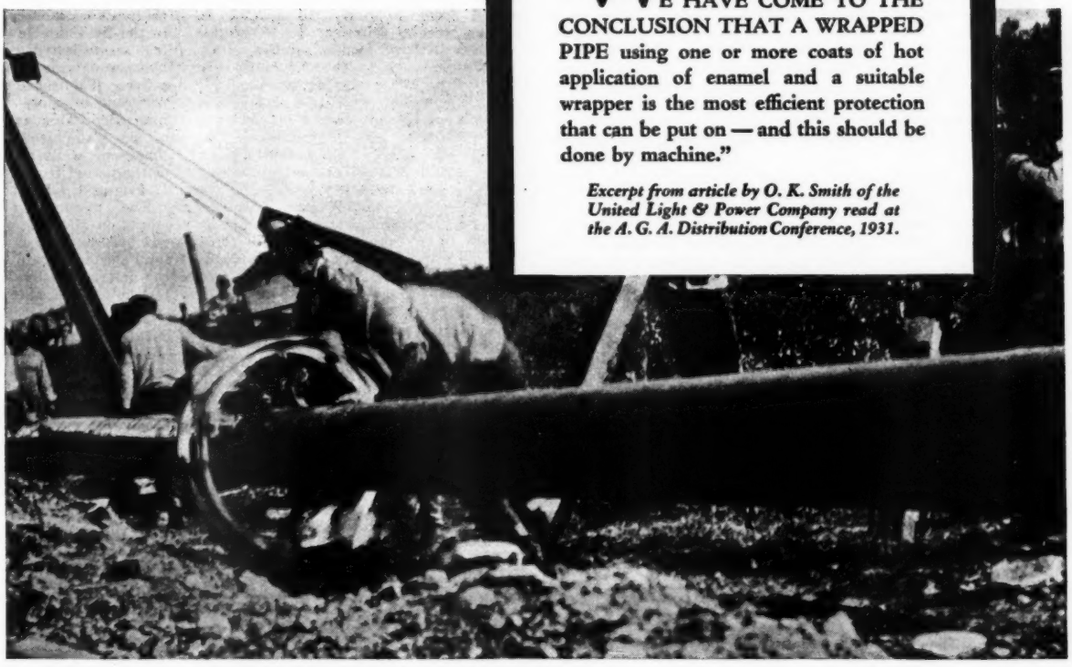
The complete choke, which is shown in a combination exterior view and cross-section in Figure 2, is about 18 inches long and consists of a hollow mandrel, a set of three slips, a packing element and a replaceable bean which fits loosely at the bottom of the mandrel. The three slips ride on a tapered surface in the central part of the mandrel and have handles which extend upward through a shoulder on the mandrel and into sockets in a collar, which is free to slide on the upper end of the mandrel. Thus the slips and collar, or "slip-carrier," as it is termed, move as an integral part. Three leather or composition pump cups, separated by steel cup rings, fit snugly over the lower end of the mandrel and constitute the packing element. The bean proper, which is about 3 inches long, fits a tapered seat in the lower end of the mandrel, against which it is held by a light spring, and is housed in a perforated nipple, which screws over the end of the mandrel, compressing the cup rings. This arrangement of the bean permits fluid trapped above the choke to drain to bottom more rapidly, thus facilitating the pulling of the choke.

Cleaning Tubing

Before the choke is run into a well, a template or gauge tool is screwed to the bottom of a set of small link or tubular jars (Figure 3) and run on a steel measuring line through a lubricator and stuffing box (Figure 4) to the bottom of the tubing in order to determine whether the inside diameter of the tubing is out to gauge and free from obstructions. This tool is one-sixteenth-inch larger in diameter than the maximum diameter of the choke and has a hard cutting edge which removes blisters, burrs and paraffin from the walls of the tubing.

The running tool is a steel collar, one end of which screws to the set of jars, and the other end is slipped over and riveted to the slip-carrier on the choke, so that in a running position the choke is suspended by the slips, which are then in their retracted position. The choke and

(Continued on Page 82)



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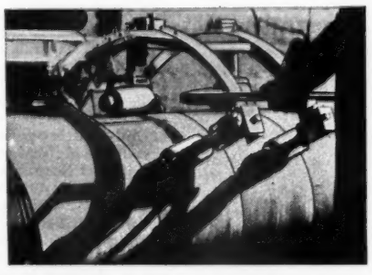

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ASBESTOS PIPE LINE FELTS

Crude Demand Increases in Oklahoma

Production 18,000 Bbls. per Day Greater Than in Previous Week. New Allowable for Oklahoma City and New Regulations

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma oil production increased 18,000 bbls. for the week ending February 27, when the daily average was 431,650 bbls. a day. Most of the increase was from the Oklahoma City Field, where the purchasing companies increased their runs. The pipe line nominations for the next two weeks from Oklahoma City show a substantial increase over the previous two weeks. A new proration order was issued Saturday by the Corporation Commission, effective March 1, for the first 15 days of the month, increasing the allowable production of the Oklahoma City Field from 94,000 bbls. a day to 102,000 bbls. a day. Few changes were made in the new order.

Changes in the order permit wiping out of the underproduction and the removal of crude oil stocks on leases from the underage classification. These changes are in line with Umpire Collins' suggestions of removing all the underage in the field as speedily as possible.

A total production of 4,000 bbls. a day is allotted to the Siliceous lime area, this being a decrease of 1,000 bbls. a day from the previous 15-day period, when the wells average 4,281 bbls. a day. The 87 wells, outside of the lime zone, and making 3 per cent or more water, are allowed 100 bbls. a day each, or a total of 8,700 bbls. There was an increase of six water wells during the last 15-day period.

Deferred underproduction, the underage as of February 1, will be produced at the rate of 1.5 per cent for a total of 43,450 bbls. a day. The commission found the deferred underage to total 2,896,637 bbls. outside of the Siliceous lime area, which is handled by a special classification and all of the underage was wiped out several months ago.

Wells even with production schedules that have taken potential tests total 660, and these are credited with an adjusted potential of 3,218,456 bbls. a day, of which they are to be allowed to produce one-half of 1 per cent a day, or 18,000 bbls.

Underproduction 150,000 Bbls.

The commission estimated the current underage for February at 150,000 bbls. and this is expected to be moved at the rate of 10,000 bbls. a day during the present 15-day period. Approximately 3,300 bbls. daily was allocated to new wells, scheduled to be completed and tested during the 15-day period.

At the last hearing recommendations were made to the commission to change some of the rules and regulations regarding the proration plan in the Oklahoma City Field. These matters were not mentioned in the new order, but will probably be considered in a special order to be issued within a few days.

The commission also set March 12 as the time to consider the nominations and fix the allowable for the last half of March, and to consider the taking of new potentials in the field.

An increase in demand for Oklahoma City oil in the first half of March was indicated when the representatives of the purchasing companies nominated 101,667 bbls. a day for that period. The daily average shipments for the first eight days of the last half of February were 94,451 bbls. Companies increasing their nominations include the Shell Petroleum Corp. from 4,000 to 10,000 bbls. a day; the Sinclair Oil & Gas Co. from 3,000 bbls. to 9,000 bbls. a day. The latter company ran around 15,000 bbls. a day during the last half of February.

The Magnolia Petroleum Co. reduced its nominations from 12,000 bbls. to 7,000 bbls. a day, probably due to the fact it is filling its requirements to its refineries from storage crude. The Century Petroleum Co. withdrew as a purchaser due to leasing its refinery to the Salem Oil Co. which nominated 2,500 bbls. a day. Major Petroleum Products Co. became a purchaser and nominated 250 bbls. a day, while the Globe Refining Co. increased its nomination from 7,000 to 7,100 bbls. a day.

Company Nominations

Representatives at the hearing express the opinion that the demand was expected to show an increase around the first of April. The nominations by companies, compared with the average pipe line shipments for the first eight days of the period from February 15 to 24, inclusive, were as follows:

Company—	Shipments (bbls.)	Nominations (bbls.)
Champlin	552	552
Continental	2,250	2,000
Empire	17,563	18,000
Magnolia	6,138	7,500
Oklahoma	18,283	18,000
Operators	1,471	1,471
Prairie	1,190	1,190
Shell	4,473	10,000
Sinclair	4,264	9,000
Stanolind	22,271	20,000
Tidal	179	179
Wilcox	1,749	1,800
Century	988	....
Anderson-Prichard	28	....
Canadian	176	176
Capitol P. & R.	14	14
Globe	8,391	7,100
Petroleum	1,256	1,500
Salem	2,776	2,500
White Oak	435	435
Major Petroleum	....	250
Total	94,447	101,667

Water intrusion in wells in the Oklahoma City Field shows an increase over the previous month. There are 660 wells in the field outside of the lime zone, having an adjusted potential of 3,218,456 bbls. a day, according to the umpire's office. There are 87 wells showing 3 per cent or more water outside of the lime zone. This amounts to an increase of six water wells. Production of the lime zone wells for the first seven days of the period from February 15 to March 1, averaged 4,281 bbls. a day.

The umpire's office estimated the stocks on March 1 would amount to 790,641 bbls. and the current underproduction for February would be 388,480 bbls. while the deferred underage would total 1,636,600 bbls. as of March 1.

Other Rulings Asked

Ray M. Collins, state umpire and Oklahoma City Field umpire, asked the Corporation Commission for a rule permitting wells now serving shut down time under the time plan to eliminate their overproduction and to get even with the proration schedule on the percentage plan basis. The new rules issued about two weeks ago covered most of the wells in the field and practically eliminated the long shut down periods, but many of the wells are still serving shut down time and cannot get even.

Another ruling asked for was an order for setting casing in wells in order to prevent migration of water and gas through the horizons. It was suggested that an order be made requiring a string of casing to be landed at least 20 feet in the checkerboard lime, found in the field at from 5,300-5,500 feet in depth and that it be cemented to the surface or at least 1,500 sacks of cement. On the flowing string of pipe, it would be required that the casing be landed on top of the pay horizon and cemented back to the bottom of the first string of casing or with 500 sacks of cement. It is believed such procedure would help seal all the horizons except the one which was producing.

An Interesting Well

The southwest part of the Oklahoma City Field is being watched with considerable interest due to the prospects of new developments. Harrell-Davis' No. 1 Fish, SE cor. NE SE SE, Section 22-11-3w, is preparing to make a production test. The well caught fire while flowing into the pits and was shut in immediately. It is estimated the flow was at the rate of 20,000 bbls. of oil a day and 75,000,000 feet of gas. The oil was found in the Wilcox sand at 6,430-6,505 feet.

During the week 34 wells were tested for gas-oil ratio, out of a total of 73 wells which are believed to have an excess of 10,000 feet of gas to the barrel of oil. The wells tested are owned by the following companies: The Indian Territory Illuminating Oil Co., 25 wells; Tom Slick Oil Co., 6 wells; Sinclair Oil & Gas Co., 2 wells, and Cromwell-Franklin Oil Co., 1 well.

Potentials were announced on two more wells in the Oklahoma City Field and a number of others remain to be taken under the provisions in the revised order of the Corporation Commission of a few weeks ago. Continental Oil Co. and others' No. 1 Black, in Section 10-11-3w, flowed 5,109 bbls. of oil in four hours and was given an adjusted potential of 10,218 bbls.

Coline Oil Co.'s No. 11 Clauer, in Section 25-11-3w, an old well now on the gas lift, was granted a new potential by the commission and made 1,441 bbls. in four hours, with an adjusted potential of 2,882 bbls. a day. New producers found in the Oklahoma City Field include the following wells: The Ocate Oil Co.'s No

(Continued on Page 64)

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	S.D. 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	S.D. 5,502 ft.

ATOKA COUNTY

Edgerton Edwards' No. 2 Rowland, SE NE NW Sec. 6-1-1E	Rig abd.

BECKHAM COUNTY

Pattel Royalty's No. 1 Goose Tree, SW SE SW SE Sec. 32-10-23w	Rig.
Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	T.D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cmt. to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w	S.D. 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	S.D. 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	S.D. 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	S.D. 1,115 ft.

CHEROKEE COUNTY

La Piere et al's No. 1 Woods, C SE SE Sec. 27-17-21	S.D. 1,504 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McGraw, NE NW Sec. 2-1s-8	S.D. 1,450 ft.
Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Drlg. 1,155-60 ft; show wtr.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	S.D. 1,450 ft.

CREEK COUNTY

R. F. Moore et al's No. 1 Gillam, NE cor. SW NW, Sec. 17-17-8	Drlg. 750 ft.

CUSTER COUNTY

Miley Pet. Co.'s No. 1 Caldwell, NE, Sec. 12-14-14w	Location.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	S.D. 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	S.D. 4,830 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor. Sec. 1-7-22w	5,000,000 ft. gas 1,455-65 ft., T.D. 1,760 ft.
French's No. 1 Murphy, SW NW Sec. 23-7-21w	S.D. 1,645 ft.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE Sec. 14-9-19	S.D. 650 ft.
Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	S.D. 2,000 ft.
Ault et al's No. 1 Hall, SE NW Sec. 25-19-9	S.D. 200 ft.
Holden's No. 1 Phillips, SE cor. Sec. 3-9-18e	S.D. 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e	S.D. 2,387 ft.

KAY COUNTY

Bluebaugh et al's No. 1 Indian, C NW NE, Sec. 30-25-1	Drlg. 200 ft.
Harris & Haun's No. 1 Watson, SW NW Sec. 28-28-1w	Drlg. 1,295 ft.
W. H. Atkinson et al's No. 1 Hayes, SE NE Sec. 24-28-3	Drlg. 3,122 ft.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1	Location.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2	S.D. 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w	Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w	S.D. 820 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE Sec. 16-6-19	S.D. 1,542 ft.

LE FLORE COUNTY

Dowd et al's No. 2 Thomas, SE NE, Sec. 17-3-22	S.G. 1,194-1,248 ft.; shot with 30 qts., 1,000,000 ft. gas; completed.

LINCOLN COUNTY

Hilton Phillip's No. 1 Phillips, SW NW Sec. 2-14-3	Drlg. 2,010 ft.
Mote et al's No. 1 School Land, NW cor. Sec. 36-17-5	S.D. 1,160 ft.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor. Sec. 21-11-3w	S.D. 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w	S.D. 5,515 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5	S.D. 1,950 ft.

PITTSBURG COUNTY

Tape Oil Co.'s No. 1 Fulton, SE Sec. 34-7-14	Drlg. 1,455 ft.
J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17	Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14	Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14	Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w	C.O. 5,150 ft.

(Continued on Page 71)

New Pool on Ellsworth-Barton Arch

Gypsy Oil Co. Finds Oil in a Rice County Test. Hugoton Gas Producers Have Marketing Troubles. New Potentials

By W. A. Spinney
Staff Correspondent, Kansas Fields

The few oil wells completed in the Kansas fields in the past week did not increase the production of the State materially and the average daily crude oil output was 99,950 bbls., an increase of 1,000 bbls. per day over the previous week.

Another pool is believed to have been found on the Barton-Ellsworth arch, in Rice County. Gypsy Oil Co.'s No. 1 Steckel, C NE NW, Section 33-19-10w, 2½ miles northeast of the Isern Pool, which is located along the boundary line of Barton and Rice Counties, found oil in the Silicious lime at 3,312-24 feet. Oil rose 1,500 feet in the hole in a short time. The well is estimated at 700 bbls. a day. The Gypsy Oil Co.'s discovery adds another to the list of pools that have been found on the Barton arch, along a stretch of 50 miles. The top of the Silicious lime was found at 3,299 feet and the first showing of oil at 3,305 feet, where the 6-inch casing was landed. The pay was found at 3,312 feet.

The Gypsy Oil Co. has a block of 1,000 acres surrounding the well, owning all the offsets to the discovery well, which is the eighth wildcat that has found oil production in the county.

New locations announced during the week include tests in Pratt, Kingman and Barton Counties. R. J. McMurray and others' No. 1 in the SW cor. SE, Section 28-27-11w, Pratt County; Skelly Oil Co.'s No. 1 in the C SE SW, Section 20-27-10w, Kingman County; and Morgan & Flynn's No. 1, NE cor. NE SW, Section 30-18-15w, Barton County.

Derby Oil Co.'s No. 1 Rainbow, NW cor. SE, Section 33-22-7w, Reno County wildcat, was rigging up preparing to spud.

Liggett and Colle's No. 1 Thode, C NW NW, Section 11-21-7w, Rice County, is a new location, on a block of 5,000 acres.

In the Ritz-Canton Pool, in McPherson County, W. H. Lassen and others' No. 2 Hale, SW cor. SW NE, Section 24-19-2w, is estimated at 2,000 bbls. a day from the Viola lime at 3,394-3,411 feet. Oil rose 2,000 feet in the hole in 1½ hours. In a short production test it swabbed at the rate of 2,700 bbls. a day.

Operations in Kansas show an increase over the previous week with the total active operations in the State totaling 136. A comparison of the two weeks were as follows:

Operations—	Feb. 24	Feb. 17
Drilling	57	55
Shut down	39	31
Locations	30	23
Rigs	20	22
Total	136	131

During the week two wells were completed along Barton-Ellsworth Arch, one in Ellsworth County and the other in Stafford County. Alyward and others' No. 2 Stratman, NE cor. NW SE, Section 1-17-10w, swabbed 120 bbls. of oil an hour from the Silicious lime at 3,267-96 feet. It is the fourth well completed in the Stratman Pool. The well is estimated to be good for 1,700 bbls. a day on the pump. It will be tubed and produced under the proration regulations. In Stafford County, Midwest Refining Co.'s No. 29 Allen, C SW SW, Section 31-22-11w, swabbed 1,035 bbls. of oil in 24 hours from the Silicious lime. It is the northeast diagonal offset to the discovery well in the county, the same company's No. 3 Richardson. In testing the Allen well, the fluid level was not lowered below 1,800 feet from bottom.

Slick, Pryor & Lockhart and others' No. 1 in the NE cor., Section 26-17-10w, is a location. It offsets the same company's No. 1 Heiken, which was completed in 1930. The well has been shut in since that time. The north offset to the discovery well is owned by the Gypsy Oil Co. and it is believed another offset will be started by that company in a short time.

The Derby Oil Co.'s No. 1 Stratman, in Section 12-17-10w, Ellsworth County, was shot with 50 quarts and the well was swabbing 10 bbls. of oil an hour while cleaning out. Before the shot it was estimated at 150 bbls. a day.

New Potential Tests

The Kansas Public Service Commission has issued an order that potential tests in the Ritz-Canton Field, in McPherson County, are to be taken not later than March 10. All wells are to be tested in the manner in which they are normally produced, nonflowing wells to be produced by pumping and flowing wells to be produced by natural flow.

Tubing shall not exceed 3-inch, inside diameter, working barrels shall not exceed 3-inch, and the pumping stroke, while taking the tests, shall not exceed 54 inches.

All tests shall be for a period of 12 hours and the potential for the well will be figured by multiplying the test by two.

In order that owners of offset wells or acreage may have an opportunity to be present when tests are taken, they must be notified by the operator testing when tests are to be taken.

All tanks on the lease, including flow tanks, settling tanks, and stock tanks must be gauged, thiefed and measured for water at the beginning and end of each test by a representative of the umpire, and by at least one representative of an adjoining or offset lease.

Oil run from a lease while a well is being tested must be gauged and the pipe line run tickets acknowledged by a representative of an adjoining lease.

Pumping or flowing production into tanks immediately at the well is prohibited.

All wells not taking a proration test while other wells on the same lease are being tested must be shut down and sealed for the duration of the test.

Tests may be started at any time after the receipt of notice and must be finished by March 10. Allowable production on basis of new tests will be figured from March 1.

Wells failing to test by March 10, and wells on which the operators elect not to take a test will receive the minimum daily allowance of 100 bbls. daily for all chat wells and 50 bbls. daily for all Viola lime wells.

No allowance for down time on tests will be given, but in event of breakdown, the operator will be given another opportunity to test. Violations of any of the above rules will automatically void the test.

Decker Gas Field

Another combination oil and gas well was added to the Decker gas field, located northwest of the Ritz-Canton Pool, in McPherson County. The well was Rush Drilling Co.'s No. 2 Robinson, C NE SW Section 10-19-2w. It is estimated to be good for 600 bbls. and 6,500,000 feet of gas per day from the chat at 2,932-83 feet. It flowed over the top of the rig before being shut in for a pipe line connection.

The well is located between two gas wells, the north one making 13,000,000 feet a day and the south one making 12,000,000 feet a day.

Hugoton's Market Problem

The disposal of gas has become a problem in the Hugoton gas field in the southwestern part of the State. The pipe lines that are transporting natural gas and gasoline out of the State, to north and northeastern points, refuse to purchase the gas ratably from wells in the field, as provided by the state law claiming they are beyond the jurisdiction of state regulation because of being engaged in interstate commerce.

The pipe lines are taking gas only from their own wells in the field, or affiliated wells, while scores of independent producers are without pipe line outlets. Some of these producers are converting their gas into carbon black and gasoline, with what is believed an enormous waste of gas while some others are shut down.

A few months ago the Public Service Commission was planning to make a check of the Hugoton gas field in the interests of conservation, but it was delayed.

A recent check of the Hugoton gas field shows that 160 gas wells have been completed with an average of 5,000,000 feet of gas a day per well. The combined open flow of the field is estimated at 810,000,000 feet a day, and of this amount the pipe line companies are taking only about 54,000,000 feet a day.

The field lies mostly in Stevens and Morton Counties, although extension wells have been completed in Grant and Haskell Counties and in Texas County in Oklahoma. The field in size compares to the largest gas field yet found in the United States and only a small part of it has been developed. There are thousands of undrilled locations. The gas production is found in the Colorado shale at approximately 2,500 to 2,800 feet.

Barber County

Barbara Oil Co.'s No. 4 Carter, NE cor. SW NE Section 11-33-13w, is dry and abandoned at 4,927 feet.

Barton County

Derby Oil Co.'s No. 1 Berscheidt, NW cor. NE SE, Section 12-20-11w, has been completed for 60 bbls. in sand at 3,295-3,320 feet after plugging back to 3,326 feet from total depth of 3,352 feet.

Coffey County

Aikman & Young's No. 1 Strickland, NW cor. SW SW Section 14-22-13, has been completed for 60 bbls. in sand at 1,860-80 feet.

Cowley County

Jones, Roth & Faurot made location for No. 1 Baker, NW cor. NE SE Section 22-32-4. Dan Patton and others' No. 1 Sitton, NW cor. SW NW Section 29-31-6, has been completed for 150 bbls. in sand at 2,914-63 feet. Knox Drilling Co. and Eason Oil Co.'s No. 1 Mattison, Lot 11, Block 44, Musgrove addition to city of Winfield, Section 22-32-4, made

(Continued on Page 64)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location— Remarks:

BARTON COUNTY

Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w.....S.O. 3,225-28 ft.; 3,304-10 ft. wtr.; fishing 3,375 ft.

BUTLER COUNTY

Ward McGinnis' No. 1 Bush, SW NE, Sec. 10-24-2 .....Drlg. 1,125 ft.

DICKINSON COUNTY

Severe et al's No. 1 Lavengood, NE SW Sec. 13-13-2.....S.D. 4,752 ft.

ELLSWORTH COUNTY

R. Gear et al's No. 1 Sanberth, C SW SE Sec. 29-16-9w..S.D. 50 ft.

Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w .....Siliceous 3,255-71 ft.; 117 bbls. 2 hrs. shut in; estimated 2,000 bbls.; no pipe line connections.

Alladin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w...Siliceous lime 3,332-47 ft.; estimated 1,500 bbls. a day; shut in.

FINNEY COUNTY

National Ref. Co.'s No. 1 Wells, C SW Sec. 13-23-30w....S.D. 3,805 ft.

HARVEY COUNTY

Liggett et al's No. 1 Davis, SW SE NE Sec. 7-24-1.....S.D. 2,500 ft.

KINGMAN COUNTY

Skelly Oil Co.'s No. 1 Miles, NE cor. Sec. 30-27-10w....1,635-40 ft., 2,000,000 ft. gas; at 2,005-20 ft., 6,000,000 ft. gas; at 1,133-42 ft., 3,000,000 ft. gas; showing oil 3,385 ft.; T.D. 3,504 ft.

Panhandle Drlg. Co.'s No. 1 Wetheral, C SE NW SW Sec. 20-28-10w .....Fishing 100 ft.

McPHERSON COUNTY

Twin Drlg. Co.'s No. 1 Farver, SW SE Sec. 16-20-1w....Drlg. chat 2,928-30 ft; show gas; T.D. 2,950 ft.

Shell Pet. Corp.'s No. 1 Johnson, SE SW SW Sec. 35-19-3w .....Top chat 2,984-3,007 ft; 13,500,000 ft. gas and 300 bbls. oil; shut in.

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w .....T.D. 3,640 ft.; temp. abnd.

MORRIS COUNTY

Kostle-Moseley & Hatfield's No. 1 Furney, NE SE Section 16-16-8 .....Spud.

Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7..Fishing 915 ft.

Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9...S.D. 2,625 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w..... .....Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15.....S.O. 2,190-2,200 ft.; S.D.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor. Sec. 3-2-35w..S.D. 3,925 ft.

RENO COUNTY

Jarvis & Wright's No. 1 Rainbow, NW SE Sec. 33-22-7w..Rig on ground.

RICE COUNTY

J. Liggett et al's No. 1 Thodel, C NW NW, Sec. 11-21-7w..Rig on ground.

Gypsy Oil Co.'s No. 1 Steckel, C NE NW Sec. 31-19-10w..Drlg. 2,712 ft.

RUSSELL COUNTY

J. Brennan's No. 1 Waly, CNL E½ NW Sec. 29-13-11w...Rig.

T. Palmer et al's No. 1 Pasek, C SE Sec. 3-14-11w.....Drlg. 3,130 ft.

RUSH COUNTY

Skelton et al's No. 1 Brock-Hartman, SW SE NE Sec. 4-18-16w .....S.D. 50 ft.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W½ NE NW, Sec. 20-13-4w .....S.D. 2,710 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW Sec. 27-7-26w.....Fishing 4,135 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE Sec. 10-33-39w..S.D. 5,521 ft.

SUMNER COUNTY

Trees Oil Co. and Shell's No. 1 Springate, NE SE SW Sec. 6-34-2 .....Drlg. by csg. 2,285 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3.....S.D. 1,720 ft.

Sabine Parish Wildcat Is Interesting

Deep Tests at Zwolle District Experiencing Difficulties. Drilling Planned in Wildcat Areas in Four States

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 29.—An attitude of watchful waiting was assumed in this division during the past week, particularly on developments in several deep tests and wildcats that are nearing the pay horizons or are getting ready to test. Another concern of operators in North Louisiana, Arkansas, Mississippi and Alabama is the development in the nearby East Texas fields, efforts to break down the proration regulations of those areas, and the resultant effects this would have on the wildcatting program now being planned in these States. An optimistic feeling permeates this division at the present time that a consistent drilling campaign will be resumed, for the expansion of the proven areas, both geographically and for deeper pay, and also in rank wildcat territory. To maintain normal wildcat operations, however, the operators of this section realize that the large flush fields must be held to an allowable daily flow that will insure a price for crude commensurate with the cost of drilling and exploring these new areas.

Sabine Parish

In the northern part of Sabine Parish, between the Pleasant Hill and Zwolle Fields, Frank Foster's No. 1 Stephens, Section 20-9-11, is being followed with interest. This test was recently started on a 4,200-acre block obtained from the Langbridge Oil Co., and on which this company completed a 50-bbl. flowing well last October from 3,369 feet. The new wildcat, which is expected by many to prove up another producing dome in that vicinity on the order of the Pleasant Hill Field, is about one-half mile south and west of the Langbridge test. The well is drilling in shale at 2,259 feet, and the paleontological reports place the top of the chalk at 1,765 feet with the base at 2,235 feet, or a total thickness of 470 feet. The log from the producing well reveals a thinner layer of chalk encountered, with the top at 1,832 feet and base at 2,164 feet, or a total thickness of 332 feet. The Foster test checks about 30 feet higher on surface elevation, with the top of the chalk encountered 67 feet higher. This area, as in Pleasant Hill, produces from a sand, and not from crevices in the chalk as in the Zwolle Field to the south.

Deep Tests at Zwolle

Two deep tests in the Zwolle area are experiencing some difficulties in making progress. R. L. Gay, trustee's No. 1-A Long Bell Lumber Co., Section 10-8-13, several miles northwest of the shallow producing area, has been reaming to bottom during the week to set casing for a test. This well recovered 6 feet of Oolitic limestone, carrying oil, from 4,775-89 feet, in the Glen Rose of the upper Trinity horizon. The latest reports from this test reveals that the hole has been reamed to below 3,900 feet, but in coming out of the hole, the rock bit stuck and arrangements are being made to lubricate it. The other deep test, the Loring Oil Co.'s No. 18 Bowman-Hicks, Section 15-7-12, in the southern part of the field, 15 miles southeast of Gay's test, is experiencing similar difficulties in drilling. With the total depth at 4,500 feet, 1½ joints of drill stem was lost in the hole, and the crew is now whipstocking at 4,390 feet. This test, which has not yet reached the upper Trinity, recorded the top of the chalk at 2,218 feet, 586 feet lower than the Gay well, which encountered this formation at 1,632 feet. The top of the lower cretaceous in the latter test, was 3,430 feet, while in the Loring, it was 3,998 feet. This would indicate that the Loring well should get into the Oolitic lime of the Glen Rose slightly below the 5,200-foot level.

Shelby County

In East Shelby County, East Texas, Harry Elliott and others are clearing titles on their block before making a test on their No. 1 Pickering Lumber Co., G. H. Patterson Survey. This wildcat had an excellent show of oil and gas a few weeks ago from the Nacatoch at 1,495 feet, since which time casing has been set about 7 feet off bottom. The test is located a few miles south of E. L. Chapman's No. 1 Pickering Lumber Co., C. E. Henry Survey, a good gas well brought in during last year from a depth of 3,864 feet. Several years ago, the Gulf Refining Co. drilled several wells in the vicinity of the Elliott test, all of which had good showings of oil or gas at various depths. One of the wells, No. 1 Pickering Lumber Co., G. H. Patterson Survey, flowed from 52 to 152 bbls. daily from two depths over 3,000 feet, but the Elliott test is the first one to get a good show in the shallow Nacatoch sand.

Four other wildcat blocks in three different states were reported during the past week. In the northwestern part of Bowie County, East Texas, near the Red River County line, Burnham, Robinson & Greer have made a location to drill their No. 1 Weiss in the Jesse Dean Survey. A block of 10,000 acres was assembled by Robinson and Greer, 4,500 acres of which was turned over to Joe Burnham for a 3,500-foot test. This area has a good surface and subsurface recommendation, one major company having made a thorough survey of it several years ago. It is expected to reach the Woodbine formation in this test around 1,200 feet, with the top of the upper Trinity around 1,600 feet. With the contract calling for a 3,500-foot test, a thorough exploration of the upper and lower Trinity horizons will result. The wildcat is 15 miles southwest of DeKalb in Bowie County, but a good part of the assembled block is in Red River County.

Mississippi Block

In Rankin County, Mississippi, A. F. Wortman has obtained a block of 10,000 acres in Township 4n, Ranges 2 and 3e, with a contract to drill a 3,500-foot test, operations to start not later than May 1. This acreage is located southeast of the Jackson gas field in Rankin and Hinds Counties. Morehouse Parish, in Northeast Louisiana, reports two blocks being assembled. Louis Felton has 3,000 acres centering around Section 4-21-7e, with a five-year commercial lease paying 50 cents per acre bonus when leases are signed and 50 cents renewal. The Texas Company has obtained 4,000 acres centering around Section 20-22-7e, on a five-year commercial lease.

Completions

Only two completions were reported for the whole division during the past week, the Zwolle area of Sabine Parish turning in a dry hole, and the Jackson Field of Mississippi a good gas well. The former was C. H. Tuttle's No. 1 Byrd, Section 7-7-10, an extension test to the east of production on that flank which is marked by Smitherman & Grigsby's No. 1 Gardner, one-quarter mile west of Tuttle's test. The well tested dry at 2,512 feet and 2,565 feet and was abandoned at 2,718 feet. James Alexander's No. 1 Taylor & Watkins, Section 1-5n-1e, Rankin County in the Jackson Field, was one of the best wells to date for that gas area. The well gauged 52,290,000 feet of dry gas, with 980 pounds rock pressure from 2,347 feet. It was an extension of about one-fourth mile northeast to the Rankin area.

In the western part of the Zwolle Field, the Southland Drilling Co.'s No. 1 Mansfield Hardwood Lumber Co., Section 36-8-13, seems destined to be a good well. After hitting a producing crevice in the chalk at 2,403 feet, the operators were preparing to run a string of tubing in the hole when the well began flowing by heads. It has since sanded up, and the tubing will be inserted. The test is an extension of one-fourth mile north and west of the far western hot spot of Zwolle townsite production in Section 1-7-13. Other North Louisiana drilling operations follow: Bossier Parish, W. N. Hankin's No. 1 Newell, Section 12-19-11, testing at 1,985 feet; Caddo Parish, Calatex Oil & Gas Co.'s No. 1 Hudson, Section 8-16-16, drilling chalk 1,565 feet; the Louisiana Oil & Gas Co.'s No. 1 Hammock, Section 32-19-16, drilling at 1,825 feet, with the base of the chalk at 1,735 feet.

Daily Average Runs

There was an average increase of only 65 bbls. daily in the runs from the fields of North Louisiana and Arkansas during the week. The former declined 300 bbls. daily, while the latter through a 350-bbl. increase in Urbana registered a total to offset this. The daily average runs from the several pools were:

NORTH LOUISIANA	Bbls.
Caddo, light	5,415
Caddo, heavy	2,070
Cotton Valley	495
DeSoto and Red River	1,995
Elm Grove	240
Haynesville	4,660
Holly	220
Homer	2,930
Pleasant Hill	325
Sarepta-Carterville	880
Urania	3,120
Zwolle	5,645
Total North Louisiana	28,195
Total previous week	28,495
Decrease	300
ARKANSAS	
Champagnolle	1,860
El Dorado	3,040
Lisbon	570
Nevada	1,200
Smackover, light	2,950
Smackover, heavy	22,940
Stephens	665
Urbana	700
Total Arkansas	33,865
Total previous week	33,500
Increase	365
Total both States	62,060
Total previous week	61,995
Increase	65

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Company, farm and location—	Remarks:
Stauffer & Eshleman's No. 1 Caruth, Sec. 40-1n-7e	Derrick.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	W.O.S.R. 2,890 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	Drlg. 1,985 ft.
H. I. Morgan's No. 1 Strange, Sec. 23-19-11, 660 ft. N and E, SW cor.	Reaming 1,767 ft.
Triangle Drlg. Co.'s No. 1 Nuckolls, Sec. 7-22-12, 1,985 ft. W, 1,980 ft. S, NE cor.	Rigging up.

CADDO PARISH

Calatex O. & G. Co.'s No. 1 W. B. Hudson, Sec. 8-16-16, 2,640 ft. E, 2,865 ft. NW cor., Sec.	Drlg. 1,565 ft.
Louana O. & G. Co.'s No. 1 Hammock, Sec. 32-19-6, 660 ft. N and W, SE cor.	Drlg. 1,825 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	S.D. 1,100 ft; high wtr.
Hudson et al's No. 1 Burton, Sec. 35-12-2e	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMillen, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	T.A. 3,097 ft.

DESOTO PARISH

E. T. Oakes' No. 1 R. H. Bryant et al, 300 ft. N and W, SE cor. NE NW, Sec. 30-13-15	Drlg. lime and shale 3,218 ft.
A. R. Smith's No. 1 Horn, Sec. 16-12-16, NE cor. Sec.	Rigging up.

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LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location—	Remarks:
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	S.D. 2,275 ft.

MOREHOUSE PARISH

Southern Carbon Co.'s No. 57 fee, Sec. 9-20-4e, 660 ft. N, 1,317 ft. E, SW cor.	Drlg. 1,860 ft.

OUACHITA PARISH

Carbon Cons.' No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N, 7,475 ft. W of cors. of Secs. 25, 26 and 49, in Sec. 50	Location.

SABINE PARISH—ZWOLLE

L. F. Bahan's No. 1 Quayhagle, Sec. 11-7-11, 250 ft. N, 330 ft. W, SE cor. Sec.	Rigging up.
Coates Pet. Co.'s No. 2 McNeely, Sec. 14-7-11, 250 ft. S and W, NE cor. NW NE	Derrick.
Crescent Drlg. Co.'s No. 3 Byrd, 330 ft. S and W NE NW, Sec. 12-7-11	Set 10-in. 100 ft; 6-in. 2,382 ft.
Crescent Drlg. Co.'s No. 2 Byrd, Sec. 12-7-11, 330 ft. S and W, NE cor. NW NE	W.O.S.R. 2,505 ft.
Crescent Drlg. Co.'s No. 1 Cook, Sec. 12-7-11, 330 ft. S and W, NE cor. NE NW	Location.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11	W.O.S.R. 2,609 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11	S.D. 2,454 ft.
W. P. Lacey's No. 2 McNeely, 550 ft. E, 330 ft. N, SW cor. NE NE, Sec. 14-7-11	Testing 2,558 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11	Drlg. 2,150 ft.

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Revival of Drilling in Gulf Coast Area

Work Being Resumed on Several Domes and in Other Fields. Completions Few in Past Week. Deeper Drilling

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 29.—There were comparatively few developments in the way of new production and completions on the Gulf Coast the past week. However, the area as a whole gave indication of further increase in drilling activity with work being resumed on a number of domes and other pools where operations have been suspended and with new wildcatting getting under way in various parts of the coast.

Most important among completions of the week was Texas Gulf Producing Co.'s No. 9-H Kirby on the east side of the Barbers Hill Dome, Chambers County. The latter well is one of a series of good producers which have been brought in in the course of the active development which has been going on since last August in sands underlying the salt overhang in that area.

The Kirby well came in flowing 1,300 bbls. of pipe line oil through a five-eighths inch choke, 190 pounds pressure from sand at a total depth of 4,906 feet. Location is high up on the dome and in the innermost circle of production. This production is from the deep Oligocene, which is topped high at that point.

Contrary to the trend generally over the Gulf Coast, there has been a gradual let up in drilling activity at Barbers Hill within the last few weeks with as many as a half dozen drilling outfits being stacked. Virtually all the necessary offsets have been taken care of in the play which has been going on along the east flank and few new locations are being made to take the places of wells as they are completed.

One additional new location was made, however, at Barbers Hill the past week which will be of particular interest, this being Texas Gulf Producing Co.'s No. 7-A Barber on the northwest flank of the dome. This test, which now is rigging up, marks the first development which has been started on that side of the dome in nearly a year, and, as has been done on other sides of the dome, it will make an effort to find oil in sands underlying the salt. In that area some shallow production has been found in sands overlying the cap rock and several wells located off the edge of the cap rock have obtained prolific production at very deep horizons but as yet there has been no important exploration for production underlying the salt overhang there, nor has the extent of the overhang been proved on that flank. Several tests there have gone through fingers of cap rock and salt but these were located on the extreme outer edge of the cap rock area and failed to develop anything of importance. The present test is located well on the inside of previous development and closer in than even the old shallow tests, a number of which, drilled before such a thing as an overhang was thought of, were abandoned on drilling into cap rock.

Mills-Bennett Test

A test similar to Texas Gulf Producing Co.'s No. 7-A Barber on the northwest side was started the week before by Mills-Bennett Production Co. in its No. 1-B Gulf fee (Monongahela) on the extreme south side of the dome. At latest report, the latter was down 1,100 feet. Both tests, being virtually wildcats in the exploration for new production, possibilities at Barbers Hill will be watched closely. It is possible that the Bennett test may result in a new line fight on the south side with Yount Lee Oil Co. acreage offsetting that of Mills-Bennett along a probable line of drilling play.

Good Well at Blue Ridge

The only other new production of any size on the Gulf Coast during the week was at Blue Ridge, where Coronado Oil Co. (Doney & Means) drilled deeper its No. 2 Blakely and got a 1,500-bbl. well in a sand slightly below 4,550 feet. This well was completed last December in a sand at a total depth of 4,397 feet. It is one of two wells which have been drilled by these operators on a block of approximately 3,500 acres along the north side of the dome which was leased over a year ago.

Gulf Production Co. is preparing to resume development on the southeast side of the Blue Ridge Dome and is rigging up No. 19 Luscher, located 1,650 feet from the east line and 550 feet from the north line of the 490-acre Luscher tract in the Thomas Habermacher Survey. This is the first new drilling undertaken at Blue Ridge by this company in a year, and the only other development at all in that time has been the two wells drilled by the Coronado Oil Co. on the north side.

Three Workovers

Two small workovers at Refugio and one at East Hackberry, Cameron Parish, Louisiana, comprised the list of coastal completions for the week. Rio Bravo Oil Co. tested salt water in its No. 2 Fisher on the west flank of Barbers Hill and this hole was abandoned. The well was completed last August as a producer in sand at 5,390 feet, but failed to hold up and the hole was sidetracked to sand at 3,808 feet where the salt water was found. Intercoastal Oil Co. (Layne and others) has junked its No. 6 Wisdom, Damon Mound, after failing to cut out screen at 3,609 feet, where it had tested salt water. This company, however, has made location for another test, No. 9 Wisdom, located in Lot A, Block 62, A. Darst Survey. The Texas Company's No. 2 Cave, Lot B, Block 73, Damon Mound, was drilling below 2,860 feet at latest report.

At Rabbs Ridge, Fort Bend County, Cullen & West and Gulf Production Co.'s No. 3 George made only a small well in from sand at 3,220 feet and now is being deepened to the prolific 5,200-foot horizon. The well is 1,000 feet east of production on the south end of the field.

The Texas Company late in the week was preparing to drill out plug in its No. 2 Belcher, Manvel, northern Brazoria County, and a test probably will be made of a sand at a total depth of 5,572 feet. The well showed considerable gas and some oil on a drill stem test. The 9⅝-inch casing was cemented at 5,550 feet. This test is east of No. 1 Belcher, completed several months ago as the discovery well. The latter, whose bottom is at 5,495 feet, ran somewhat higher than No. 2 Belcher.

Shell Petroleum Corp.'s No. 2 Heyd, south offset to Magnolia Petroleum Co.'s No. 1 Waite, discovery well of the Iowa Field, Calcasieu Parish, Louisiana, already has picked up the first sand encountered by the Waite well but is preparing to case this off to deepen to the sand in which the Waite well finally was completed at a total depth of 6,971 feet. The Shell test has encountered sands showing oil from 4,907 feet down to its present depth of 5,111 feet. Magnolia's Waite well originally was brought in in this sand at 5,001-08 feet but failed to hold up and was deepened to the 6,971-foot level. The 5,000-foot sand carried considerable pressure and resulted in some trouble from blowouts. Shell's No. 1 Fontenot, 450 feet east of the Heyd test and a diagonal southeast offset of the Magnolia producer is drilling below 4,700 feet.

Deepening at High Island

At High Island, Yount Lee Oil Co.'s No. 25 Cade, completed several weeks ago as a small producer in sand at 5,257 feet, failed to hold up and now is being deepened, drilling below 5,400 feet for a deep test. Humble Oil & Refining Co.'s No. 1 Hooks, a semiwildcat on the south flank of Pierce Junction, drilled into cap rock to a total depth of 4,255 feet and now is being plugged back to 4,005 feet. It is anticipated the hole will be sidetracked in such a way as to miss the cap, the present hole being practically on the edge. The Hooks well was completed as a producer in sand at 3,894 feet early in January but failed to hold up and is being carried down for a deep test.

7,700 Feet in Deep Test

One of the most interesting tests now under way on the coast is United North & South Oil Co.'s No. 1 Stoddard, J. C. Keller Survey, just outside the Buckeye Townsite, Matagorda County. For a rank wildcat, this test has reached an unusually deep level and at latest report was drilling in shale below 7,700 feet. So far no showings have been found by the test.

L. P. Smith and associates' No. 1 Hudson, a deep sand test on the south side of Markham Dome, Matagorda County, tested salt water at 3,544 feet but now is being drilled deeper. On the northeast side of the dome, United North & South Oil Co.'s No. 1 McDonald is drilling around 3,300 feet, so far having failed to pick up the prolific sand found by Ellis Hamill's No. 1 Meyers, whose completion last July opened flank sand production on the northeast side of the dome. The McDonald test, however, being a little farther out from the dome from the Hamill well, should find the sand a little lower, and may pick it up at any time.

Gulf Production Co. is resuming operations at its Orchard Dome, Fort Bend County, where it has a location for No. 32 Moore. This location is to the north and inside toward the dome from No. 20 Moore, on the extreme south flank, and one of the first wells drilled in that area, where a one-well line of production has been proved skirting the flank in a semicircle.

Important Lease Transactions

Two lease transactions of some interest have been consummated recently on the Gulf Coast, both trades being figured in the Humble Oil & Refining Co. In one, this company completed selection on its geophysical block on the McFaddin ranch in the extreme southern part of Jefferson County bordering on the Gulf, the deal involving a cash bonus consideration of $50,000. In the other, Humble took over the J. O. Bennett 4,800-acre block in the extreme eastern part of Montgomery County at the southwestern corner of San Jacinto County, the consideration being $17,000. The acreage is in five-year commercial leases. The Montgomery County block is approximately 10 miles to the northeast of Strake Oil Corp.'s No. 1 South Texas Development Co., a wildcat producer in the Theodore Slade Survey, southeast of Conroe, completed last December, and is in a line of lease play which has extended eastward through Montgomery County and across southern San Jacinto County.

GULF COAST FIELDS AND WILDCATS

Week Ending February 27

BARBERS HILL—CHAMBERS COUNTY

Company, farm and location—	Remarks—
Bashara Oil Co.'s No. 2 Tarbutton, Henry Griffith League, 25 ft. W of Texas Gulf Producing Co.'s No. 2 Tarbutton	Drlg. salt 1,700 ft.; top of salt 1,414 ft.
R. E. Ferrell's No. 2 Wilburn, Henry Griffith League, 215 ft. W of No. 1 in center of 45-acre tract	Drlg. rock 1,843 ft.
Gulf Prod. Co.'s No. 7 Wilburn, Henry Griffith League, 177 ft. W of No. 6	Drlg. hard shale and lime 3,478 ft.
McAlbert Oil Co.'s No. 5 Wilburn, Henry Griffith League, 375 ft. of No. 4	Hard lime 1,398 ft.; running 10¾-in. csg.
McAlbert Oil Co.'s No. 3 Wilburn (W.O.), Henry Griffith League	Resetting screen 5,222 ft.
Mills Bennett Prod. Co.'s No. 1-B Gulf fee, Wm. Bloodgood Sur., 500 ft. E and 50 ft. N of SW cor. of "B" lease	Sandy lime rock 1,100 ft.; losing returns.
Rio Bravo Oil Co.'s No. 2 Fisher (W.O.), W. D. Smith Sur., 50 ft. out of NW cor. of tract	T.D. 5,390 ft.; drlg. sidetracked to sand and shale 3,806 ft.; tested salt water; abandoned.
The Texas Company's No. 6 Wilburn (D.D.), Henry Griffith League	Hard lime rock 4,539 ft.; reaming.
The Texas Company's No. 7 Wilburn (D.D.), Henry Griffith League	Cutting and pulling screen to deepen 4,422 ft.
The Texas Company's No. 8 Wilburn, Henry Griffith League, 25 ft. W of No. 5 and 50 ft. N of S line of tract	Drlg. sticky shale 3,825 ft.
Texas Gulf Producing Co.'s No. 1 Scott, Fitzgerald, 125 ft. from S line and 71 ft. from E line of Strip No. 1, Henry Griffith League	Drlg. salt 3,511 ft.
Texas Gulf Producing Co.'s No. 9-B Kirby, Henry Griffith League, 50 ft. out of SW cor. of J. M. Fitzgerald 50-acre tract and 110 ft. S of N line of Kirby tract	Salt 2,157 ft.; plugged to 2,057 ft. to sidetrack.
Texas Gulf Producing Co.'s No. 9-H Kirby, Henry Griffith League, 87 ft. W and 130 ft. N of No. 8-H	Set 21⅝ ft. of 7-in. screen 4,906 ft.; comp. flowing 1,300 bbls., 190 lbs. pressure, ⅝-in. choke.
Texas Gulf Producing Co.'s No. 7-A Barber, Henry Griffith League, 712 ft. from W line and 225 ft. from N line of tract	Derrick.

HUMBLE—HARRIS COUNTY

J. E. Burt et al's No. 1 C.O.&G. Texas Co. fee (D.D.), J. B. Stevenson Sur.	No report.
J. E. Burt et al's No. 2 C.O.&G.-The Texas Co. fee, J. B. Stevenson Sur., 450 ft. N of No. 1	Location.
E. M. Wilson's No. 8 W. & P. Gulf fee, 95 ft. from W line and 86 ft. from N line of Blk. 15, J. B. Stevenson Sur.	No report.

(Continued on Page 69)

Semi-Wildcat Gasser in Zapata County

Opens Possibilities East of Escobas Pool. Shallow Drilling Play in Progress in Starr County. More Activity in Jim Wells County

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 29.—Herb S. Morgan brought in a big gas well in semiwildcat territory in northeastern Zapata County at 1,472 feet, opening new possibilities in the territory east of the Escobas Pool. Two years ago Fansler and others brought in their No. 1 Cuellar at 1,676 feet for about 25,000,000 feet of gas, and it is about half a mile east of the Morgan test. Two other gas wells were drilled south of the Fansler test and completed at about the same depth. Fansler's test was located in the northwest corner of Survey 285 and the Morgan test is in the southeast corner of Survey 13.

Morgan No. 1, drilled as the K. & M. Oil Co.'s No. 1 Cuellar, is at approximately the same depth as the second sand in the Escobas Pool, 2 miles to the west, and opens an entirely new sand compared to that in the Fansler test. Of the other two tests in the territory, both of which were gas wells, the S.R.C. Oil Co.'s No. 1 Cuellar is about three-quarters of a mile south and slightly west of Fansler's and came in at 1,675 feet and is in the southeast corner of Survey 19, and the Shankle test is about 1½ miles south of Fansler and was completed at approximately the same depth.

Approximately 4 miles south and slightly west of the K. & M. (Herb S. Morgan) test Brogan & Belcher went into a sand and at 1,680 feet are arranging to test. It has a showing of oil. The new finds, including the big well of Daniels & Hill in the Escobas Pool in the second sand, has somewhat upset calculations in the Escobas area. There seems to be a possibility of a new line of play a little to the east of the Escobas Pool, the general trend of pools in all the Laredo territory being slightly east of a north and south line.

About 3 miles north of the Morgan test is the Martinez Pool where gas is had at around 1,700 feet in several wells. The discovery well there was drilled by the Magnolia Petroleum Co. several years ago.

Starr County

Zapata County is still the mecca for a lot of new oil men coming into the country, due to the fairly good production, very low drilling costs and ready market for the oil. More new deals are shaping up at this time in northeastern Zapata County around the Escobas Pool and adjoining pools and especially to the south of the Escobas than anywhere else. A leading rival to the Zapata activity is the Starr County district where very shallow wells are putting out unusually good production considering the depth of the wells. The production is only about one-third as deep as that in the Escobas Pool. Several new locations have been made in the Escobas Pool by operators new to that field.

Outside of the Zapata territory activity in the Laredo district is not great. Magnolia abandoned its No. 1-B Duval Land Co. in northern Duval at 2,450 feet. It is the wildcat in Survey 96 that got about 1,000,000 feet of gas at 1,820-27 feet. The company and S.R.C. Oil Co. have made location for No. 7 Duval Land Co. in the S.R.C. Pool 6 miles west of the wildcat.

Duval Oil Corp. is completing No. 8 Bishop Cattle Co. in the extension to the Government Wells Pool and Humble Oil & Refining Co. has made location for its No. 3 Paul White. This is about 750 feet north of No. 2 Paul White, which is the nearest producer, and will extend the field if it makes a paying well and will to that extent close up the gap between the extension on the south and the main pool on the north.

Balcones Fault

Operations are quieter along the Balcones Fault than they have been in years, with the exception of geological work being done. So far as the number of operations is concerned they are very limited and nothing at this time gives much immediate promise.

Pettus District

In the Pettus district there are three wells over the week-end that are down to the pay and drilling plugs or have already drilled plugs and getting ready to swab. Two are almost sure producers and offsetting producers. Slick-Seeligson's No. 4 Ray, a north offset to Houston Oil Co.'s No. 3 Portis, an oil well, tested a lot of gas on drill stem test at 3,912 feet and it may make a gas well. It is on the eastern edge of the extension and is approaching the barren strip between the extension and the townsite pool. Houston Oil Co.'s No. 4 Portis, 310 feet east of its No. 3 Portis and that much east and 300 feet south of Slick-Seeligson's No. 4 Ray, is making drill stem test at 3,916 feet. It looked like a well and is 310 feet nearer the barren strip than any other test.

At the west end Buck Oil Corp.'s No. 3 Ray is drilling plugs at 3,905 feet and has production every direction from it except south and will probably make a well.

Kerr County Test

Evans & Gant, after underreaming to lower the casing and shut off water in their No. 2 Love in western Kerr County, have resumed drilling and made 25 feet or more of the additional 500 feet planned to go. Every report from this well will be of interest. It is in the Mississippian, for a time thought to be Ellenberger. Now that it is known to be in Mississippian there seems more chance for production and at least more chance for formations that pay off. Total depth is now 5,870 feet and it has had some good showings of both gas and oil indicating possibilities in that territory. It had been thought by many the test before now would run out of formation and run into chist or granite.

Thus far Evans & Gant have been practically the only operators in that part of the country and have drilled a number of tests. Two other locations are starting farther east. Pat Armstrong is starting on the Karger land north of Kerrville and south of Center Point, both tests being in the eastern part of the county.

Saxet Field

Gulf Coast Oil Co.'s No. 2 Sedwick, an east offset to a producer at the same depth, came in last week at 4,560 feet gauging 375 bbls. of oil and no water in 24 hours, of 24 gravity oil. It has 1,750 pounds on the casing and 1,650 pounds on the tubing and is one of the best oil wells, if not the best, that has been completed in the district. There are two other tests at the same depth, both in the northern edge of the district. Gulf Coast Oil Co.'s No. 1 Maggie Harrell was the discovery well in that horizon in the field and came in for only about 150 bbls., but has been steadily increasing. Houston Oil Co. offset it on the south and now Gulf Coast Oil Co. is offsetting its own and the Houston test on the east, No. 2 Sedwick being the first to come in. No. 3 Sedwick is drilling.

In the coast country two important tests are getting started. Camp and Stanolind are rigging up on No. 1 King in Nueces County, north of the Agua Dulce Field, and Camp is starting to drill after setting surface casing in No. 1 Jackson in San Patricio County north of Edroy. The tests are several miles apart and line up with the Agua Dulce Field on the southwest and the Refugio Field on the northeast and also line up with Stanolind's No. 1 Stratton, 7 miles southwest of the Agua Dulce Field.

Jim Wells County Gasser

Gulf Production Co. got about a 30,000,000-foot gas well in No. 5 Schaffer at around 2,350 feet in northern Jim Wells County and located about 1½ miles north of Carsil Oil & Gas Co.'s Amargosa Pool, which thus far consists of only the discovery well and that a producer in a different sand at around 2,900 feet.

Gulf's No. 5 Shaeffer blew out when the sand was first encountered, but it was mudded off and the hole carried to 3,044 feet and then plugged back with mud to the sand. It tested by running 2,272 feet of 2½-inch tubing below with 155 feet of 4½-inch perforated liner with packer at the top of the liner. It was bailed down about 800 feet and then came in. It was allowed to flow only a short time the first day and was then closed and the next day was opened and allowed to flow till it had cleaned itself. It showed 900 pounds closed-in pressure and 690 pounds when flowing through three-eighths inch choke.

Within comparatively short time three producing spots have been found in northern Jim Wells County in a county which prior to that had never had more than a half dozen or so wildcat tests drilled in it. In the northeastern corner Larcro Gas & Petroleum Co. found a pool at 2,916 feet and has completed two wells. Carsil Oil & Gas Co., 15 miles southwest of it, brought in a gas field at a little less than 2,900 feet and now the Gulf has gas at around 2,350 feet 1½ miles north of that.

Eastern Bexar County

Chiquita Oil Co. (C. L. Witherspoon) is getting some good wells in the shallow sand in the Cooksey Pool in eastern Bexar County and there is a revival of drilling in the Eckert Pool a little to the west. The Cooksey Pool was discovered by the Penn Oil Co. on a unitized block in which the Magnolia, Sun and some others were interested, the first of its kind in Southwest Texas. They tried for the Edwards lime, but missed production in it though they got some in the Taylor marl. Chiquita Oil Co. is now developing that shallower sand in the Taylor marl at around 1,650 feet. In the Eckert Pool the production is had around 700 feet and several wells have lately been completed in that pool.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
American Central Oil Co.'s No. 2 Mary McConnell, 150 ft. W of E line, 300 ft. S of No. 1, Blk. 138, W. C. M. Baker Sur., 3 miles W and 6 mile S from Somerset.	T.D. 1,665 ft.; drlg.
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1.	T.D. 2,930 ft.; preparing to resume.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan	T.D. 602 ft.; S.D.
Theo. Hick's No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm, in Thomas M. Fowler Sur. No. 27 in extreme south point of county	T.D. 1,650 ft.; S. D.
Liles Adams et al's No. 1 Luders, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T.D. 1,100 ft.; standing.

BASTROP COUNTY

E. R. Mart's No. 2 Wm. Bahn, 2,000 ft. from E line, 1,300 ft. from S line of farm in James Sandifer Sur.	Spudded in. S.D. for repairs.
Sun Oil Co.-Humble Oil & Ref. Co.'s No. 1 Powers, 400 ft. of N and E lines of Blk. 197, Bastrop town tracts.	T.D. 3,497 ft.; drlg.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore	T.D. 2,100 ft.; standing.
Humble O. & R. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tract in Garrett Roache Sur., S part of county	T.D. 5,310 ft.; S.D.

BELL COUNTY

Bridwell et al's No. 1 Nichols, 150 ft. to W and N lines of farm, N. Roberts Sur.	T.D. 425 ft.
Bridwell et al's No. 1 G. A. White, 550 ft. to E line, 150 ft. to S line of farm, Nancy Roberts Sur., 4 miles SE from Belton	T.D. 537 ft.; no report.

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SOUTHWEST TEXAS PROVEN AREAS

PETTUS POOL—BEE COUNTY

Company, farm and location—	Remarks:
Buck Oil Corp.'s No. 3 Ray, 175 ft. from W line, 150 ft. from N line of lease in John Williamson Sur.	T.D. 3,905 ft.; drlg. plugs.
J. M. Davis et al's No. 1-B Ray, 150 ft. to N and E lines of 10-ac. lease, next south of Weinter's, John W. Williamson Sur.	T.D. 3,952 ft.; standing.
Houston Oil Co.'s No. 4 Portis, 310 ft. E of No. 3 Portis in A. Smaller Sur.	T.D. 3,916 ft.; testing.
J. L. Mauldin's No. 2 fee	Rigging up in SW cor. of lease.
Slick-Seeligson, Inc.'s No. 4 Ray, N offset to Houston Oil Co.'s No. 3 Pettus	T.D. 3,912 ft.; preparing to swab.
Slick-Seeligson, Inc.'s No. 5 Ray, 300 ft. E of No. 3 Ray in George A. Kerr Sur.	T.D. 3,250 ft.; drlg.
The Texas Company's No. 4 Gremmel	Making location.
The Texas Company's No. 5 Gremmel	Making location.

COOKSEY POOL—BEXAR COUNTY

Chiquita Oil Co.'s No. 3 Cooksey, 480 ft. from E line, 330 ft. from S line of tract in J. W. Rialls Sur.	Location.
Chiquita Oil Co.'s No. 1 Piniazek, 690 ft. from N line, 160 ft. from E line of tract in Martinez & Arocha Sur.	T.D. 1,669 ft.; going on pump.
Chiquita Oil Co.'s No. 1 Dan Kosub	Moving in.

ECKERT POOL—BEXAR COUNTY

Alamo Nat. Gas Co.'s No. 3 Gembler, 180 ft. to N and E lines of tract in Manachaca Sur.	T.D. 715 ft.; comp. 8 bbls.
Alamo Nat. Gas Co.'s No. 4 Gembler in Manachaca Sur. No. 51	Location.
F. H. Eckert & Son's No. 9 Sandemer, 150 ft. to N and W lines	Location.

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Hobbs Pool's Daily Allowable Reduced

Proration Schedule Places Permissible Outlet at 31,383 Bbls., a Reduction of 473 Bbls. From That in Effect Since January 16

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Mar. 1.—The daily allowable outlet for the Hobbs Pool was reduced for the last half of February to 31,383 bbls., a decrease of 473 bbls. daily. Two completions are due, the Midwest Refining Co.'s No. 8 Byers, which missed the "big gas" and the Continental Oil Co.'s No. 6-B State. The Continental Oil Co.'s second deep test to the Pennsylvanian on the Rattlesnake Dome in the northwestern part of the State has reached its first objective and is coring.

Negotiations for additional drilling on the Platte Valley Petroleum Co.'s leases in the Greasewood area in Colorado have not yet been concluded, but two wells are assured. Frank E. Kistler & Co. have been granted a three months' extension on their state leases in that district. One or two wells in the New Raymer district are in prospect. Major companies have 150,195 acres under lease in Morgan County. The Ohio Oil Co. has not yet made a test of its gas discovery on the Craig Dome.

In Wyoming, the West Osage Oil Co. is completing a good producer in the west extension of the Osage Field. The Government has granted permission for the drilling of another well on the Midway Domé and development is to proceed at once.

There were no completions in Montana. The Ohio Oil Co. is again shipping oil from Dry Creek and its Golden Dome test is coring in the Frontier.

NEW MEXICO

Lea County

The proration schedule for the Hobbs Pool for the last half of February issued by Umpire C. G. Staley placed the allowable outlet at 31,383 bbls. daily. This is a reduction of 473 bbls. daily from the schedule which has been in effect since January 16. The potential for the field was raised from 1,126,612 bbls. daily to 1,143,373 bbls. as of February 15. The increase is due to the inclusion of the Midwest Refining Co.'s No. 11 State, a recent completion, which was given a potential of 14,761 bbls. daily, and brings the number of producing wells up to 150 on 131 units of 40 acres each. The Midwest's No. 11 State, C NE NW, Section 4-19-38, flowed 17,363 bbls. of fluid on the proration test through casing and tubing and 14,000,000 feet of gas. About 15 per cent of the fluid was water.

The Midwest Refining Co.'s No. 8 Byers, C NW NW, Section 3-19-38, southeastern part of the Hobbs Pool, an outside well and a south offset to its No. 29 Turner, is bottomed at 3,964 feet, where the 8⅝-inch was cemented, and is waiting. The "big gas" sand at 3,718-40 feet, from which there was a large flow of gas in some of the wells in that area, was dry. Same company's No. 8 Turner, C NW SW, Section 34-18-38, a north offset to No. 29 Turner, cemented the 16-inch at 216 feet in red rock.

The Continental Oil Co.'s No. 6-B State, C SE SW, Section 33-18-38, is drilling out plug after cementing the 7-inch at 3,971 feet, and will be an early completion.

The California Co.'s No. 1 Meredith, SE cor. NE, Section 19-21-36, in the Eunice Pool, an old producer being deepened, has not been improved so far. It is coring at 3,973 feet and the core showed water at 3,968-73 feet. It started coring at 3,954 feet and at that depth it made 43 gallons of oil and 21 gallons of water in a 3-hour test. A similar test at 3,964 feet yielded 66 gallons of oil and 40 gallons of water. At 3,973 feet, in a 3½-hour test it made 70 gallons of oil and 100 gallons of water.

Eddy County

R. D. Compton's No. 1 Compton, NE NW NE, Section 8-18-27, on the west side of the Artesia Pool, is drilling at 1,135 feet in gray lime. It had a small show of oil and a little gas at 1,105-10 feet. The 8¼-inch was lowered to bottom.

Flynn, Welch & Yates' No. 61 State, SE NE NW, Section 32-18-28, Artesia area, is drilling at 1,985 feet in lime. It had a show of oil, 3 bbls. per day, at 1,933-37 feet.

The Grayburg Oil Co.'s No. 3 Burch, C SW NW, Section 19-17-30, Jackson area, commenced spudding February 16 and is drilling at 145 feet in red sandy shale. The Grayburg stockholders held their annual meeting at Artesia last week and re-elected the old board except that R. S. Long, of Longview, Tex., was elected a new director. Hugh Burch was elected president; S. Cottingham, vice president; and C. J. Dexter, secretary and treasurer.

DeBaca County

The Matador Oil Co.'s No. 1 Woods, NE SW SW, Section 6-4n-20, Salada Creek, is shut down at 3,500 feet in red sand waiting for cement to set. The 5⅜-inch was cemented at 3,495 feet.

The Landowners Oil Co.'s No. 1 McAdoo, SW cor. NE, Section 16-1s-27, Buffalo Creek, is shut down at 4,673 feet in lime.

Dona Ana County

The Middle States Oil & Gas Co.'s No. 1 Boretzi, SW cor., Section 14-26-5e, just north of the Texas boundary, is rigging up rotary tools. It will not go ahead until the Interior Department authorizes the drilling of the test.

San Juan County

The Continental Oil Co.'s No. 24, SW NW SW, Section 1-29-19, Rattlesnake Dome, the second well to be drilled to the Pennsylvanian, is bottomed at 6,683 feet and coring. It is just about at the depth where No. 17, the discovery well, came in as a producer two years ago. No. 17, C NE, Section 2-29-19, which was deepened from 6,790 feet to 6,985 feet, is standing cemented at 6,611 feet, with no change since deepening began. It has 4,250 feet of water and 700 feet of oil and basic sediment in the hole and is making 50,000 to 100,000 feet of gas.

COLORADO

Greasewood Area

Negotiations which have been under way for several weeks between the Platte Valley Petroleum Co. and some of the major companies for the drilling of two or three wells in the Greasewood area have not yet resulted in the signing of any contracts, but an officer says that a definite statement may be issued within a few days. President Menus Johnson, of the Platte Valley company, says that two of the company's leases are assured of being drilled this spring. These are the Henry Niles tract in the E half, Section 13-6n-61, and the Campbell estate lease to the southeast of the producers, in Sections 30 and 31-6n-60. A few weeks ago Mr. Niles filed a suit at Greeley to have the Platte Valley lease on his land cancelled, but it is expected that this will be cleared up before the time for drilling.

Another tract which may be drilled is the William Schmidt land, a little more than a mile to the east of the producing wells, comprising the E half SE; SW SE, Section 18, and NE NW and NE, Section 19-6n-60. Suit was filed several months ago to quiet title to the tract, Mr. Schmidt claiming that drilling had not started according to his lease to the Platte Valley company, and the latter holding that it had the right to pay rentals in lieu of drilling. The Platte Valley company gave a sublease on 160 acres of this tract to the Independent Oil & Refining Co., through A. C. Grandbouche, trustee, and the latter started preliminary work for a well on the C NE NW, Section 19. Mr. Grandbouche applied for an injunction to restrain Mr. Schmidt from proceeding with his suit. It is reported that the Continental Oil Co. claims the lease.

The state leases on Sections 36-6n-61 and 16-6n-60 held by Frank E. Kistler & Co. require the drilling of at least two wells. The State Land Board has granted a three months' extension on the drilling requirements of the leases.

The Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, the discovery well, which went off production last week after having been on production since October, 1930, is cleaning out and preparing to lower the 4¾-inch, which has been hanging about 70 feet off bottom since completion. This well was reported to be showing some water, with considerable doubt existing as to whether this water was coming from above or below. President Johnson denies the presence of salt water and said the oil was shut off by a cave 30 feet off bottom. He expressed the opinion that the well will be back on production within a few days. The last oil produced showed about one-half of 1 per cent water. Just a few days previous it had been treated with steam to clean out the paraffin and condensation could account for that quantity of water.

Part of the oil from this well is being shipped to the Mountain States Refining Co. plant at Orchard which has been running about 30 bbls. per day. The company is selling its products locally, but has shown no disposition to cut gasoline prices below those prevailing in that district.

The Continental Oil Co.'s No. 1 Gadbois, C SE SW, Section 24-6n-61, was shot with 10 quarts on February 18. Previously it had been shot with a larger quantity, but one of the shells went off 128 feet from bottom. It was cleaned out and made one small flow. Then, on February 21 it swabbed 50 bbls. Considerable experimental work will be done on the well before it is called a completion. A string of 2½-inch tubing is on the ground.

The Greeley Oil Co.'s No. 1 Gadbois, C NW NW, Section 25-6n-61, was preparing to shoot when the bailer showed 500 feet of water in the hole. It bailed 30 bbls. of water and then stopped to see whether more was coming in. This hole was drilled into the sand with rotary and some drilling water has been seeping in for some time and it is probable that this accounts for the last water which made its appearance.

The Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, on the west edge, which had water in the Dakota, has plugged off the sand and will plug back to a sand in the Niobrara and shoot off the 7-inch and test a show of high gravity oil sand at 6,260-70 feet. The Coddell sand lies at the base of the Niobrara and in several of the tests drilled the past few months it made good shows of oil. This sand varies in thickness from a few inches to several feet. This horizon at 6,785-6,803 feet was the

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NEW UNIT OPERATION SCHEME PROPOSED FOR TURNER VALLEY

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Feb. 27.—In the Turner Valley Field, Calgary & Edmonton Corp., Ltd., through its president, Col. H. F. Osler, has submitted to all the Turner Valley operators a modified scheme for unit operation. It involves organization of a company to handle production, which will take over the Royalite Oil Co. scrubbing plant and the Royalite company's contracts for the sale of natural gas. Its scope is restricted to a smaller area than the original unitization scheme proposed by Frank P. Fisher, government expert. An outline of the plan is embodied in the memorandum submitted by the Calgary & Edmonton Corp.

"From the facts presented by the oil and gas committees appointed by the government, and the information available through the operations of the corporation's lessees, it has become increasingly apparent to us that some form of conservation is essential in the best interests of those dependent upon gas from Turner Valley for their fuel supply, and, providing some reasonable compensation can be provided to the producer for the curtailment of revenue, it should be possible to bring about conservation and the best use of the resources of the field without unduly penalizing the oil and gas industry, considering that the life of the industry will be lengthened, and that in some sections of the field the ratio of gas per barrel of naphtha has risen to a point at which justification for the operation of certain wells can be seriously questioned.

"This corporation is of the opinion that those responsible for the management of the oil and gas industry in Turner Valley should be prepared to make the mutual sacrifice necessary to bring about some form of unified control which the present situation undoubtedly calls for, and at the same time demonstrate their ability to represent and protect the interests of those whose funds have contributed to make the development of Turner Valley possible.

"Bringing field operations and sales under central control will effect a considerable saving in management expense and operating costs, which saving can be passed on by the individual companies to their shareholders. This should be accomplished without legislation, except in so far as it may be necessary to provide a reasonable compensation for curtailment of the operators' revenue by some increase in the price paid to the producer for gas, and to make the agreement binding upon all parties affected.

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New Completion in Kettleman Hills

Hearing on Gas Injunction Holding Attention of Operators. May Reduce Kettleman Production and Increase Elsewhere

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 27.—Although the past week was a rather uneventful one, the State's attempt to eliminate the waste of natural gas at Kettleman Hills should give operators plenty to think about for several weeks. A hearing for modification of the existing injunction against Kettleman Hills operators will be started in the Superior Court at Hanford on February 19. If the court accedes to the wishes of the State and grants the petition for a modified injunction it will result in a substantial reduction in the production of gas and necessitate the use of gas produced in other areas. This is in line with the State's attempt to allocate production of natural gas and thus prevent any single field from monopolizing natural gas outlets and causing an abnormal waste in other areas which are unable to market current production because of the excessive overproduction in some other prolific field. If Judge Strother grants the State's petition to modify the injunction at Kettleman Hills it will permit the public utilities to pick up more natural gas at Ventura Avenue and in other Los Angeles Basin fields.

James Bennett, attorney for the State, has petitioned Judge Strother to enjoin Kettleman Hills operators "from keeping on production any well which produces at a gas oil ratio in excess of 20,000 feet of gas to a barrel of oil; provided that any well taking all of its production at a higher ratio than said ratio of 20,000 feet to the extent necessary without release to the air above the allowed tolerance to maintain the aggregate production of wet gas from the field at an average daily production not to exceed 250,000,000 feet of wet gas for each of the six months of April to September, inclusive, and no more, and at an average daily production not to exceed 350,000,000 feet of wet gas for each of the six months of October to March, inclusive, and no more. The production of wet gas taken from said first zone on any day in any month April to September, inclusive, shall not increase the total field production of wet gas from said first zone on any day in any month, October to March, inclusive, shall not increase the total field production for that day to an aggregate of more than 450,000,000 feet. Of the said allowed production from the first zone at ratios in excess of 20,000 feet there is allowed the defendant, Standard Oil Co. of California, 46 per cent; to defendant, Associated Oil Co., from the Whepley leasehold, 2 per cent; and to the defendant, Petroleum Securities Co., from the Felix leasehold, 6 per cent, and provided further that no well shall be placed on or kept on production at a ratio in excess of 20,000 feet unless the release to the air of dry gas from the field is less than the aggregate tolerance of dry gas allowed to be released to the air from the field hereunder."

Effect on Wells

If Judge Strother modifies the existing injunction at Kettleman Hills in accordance with the petition of the State it will necessitate the shutting in or pinching back of five wells now on production in the North Dome. There are the Kettleman North Dome Association's No. 41-2 P, flowing 1,350 bbls. of oil and 38,000,000 feet of gas, and No. 1-12 P, flowing 900 bbls. of crude and 32,500,000 feet of gas daily. The Standard will be obliged to restrict the flow in No. 8-1 P, doing 975 bbls. of crude and 42,500,000 feet of gas; No. 81-11 P, flowing 925 bbls. of oil and 32,250,000 feet of gas, and No. 261-11 P, flowing 1,850 bbls. of crude oil and 57,750,000 feet of gas per day. These five wells of the Standard and Kettleman North Dome Association are all producing in excess of 20,000 feet of gas to each barrel of crude and their future production will be governed by the total amount of gas produced by wells having a gas oil ratio of 20,000 feet per barrel or less. In other words, these wells will be allowed to produce a sufficient amount of gas to raise the field's total to 250,000,000 feet per day from April to September, inclusive, and to 350,000,000 feet per day from October to March, inclusive, if wells producing from the Ochsner horizon do not produce a sufficient amount of gas to reach these two maximums. If Judge Strother modifies the existing injunction in accordance with the State's petition it will become effective April 1, 1932, and continue in effect for a period of one year unless it is modified at some future date during the intervening period.

New North Dome Well

The North American Oil Consolidated's No. 1 Elsinor, located in the North Dome of Kettleman Hills in Section 36-21-17, blew in early in the week flowing 1,400,000 feet of gas and 2,400 bbls. of 34.4 gravity oil per day from 8,713 feet. This well, rather far out on the north flank, has not entirely cleaned up but will probably be allowed to remain on production as a satisfactory water shutoff was secured on the 6⅝-inch water string landed and cemented at 8,356 feet. No. 1 Blauvelt of the North American is still held up with mechanical trouble at 9,500 feet and, while some progress has been made in recovering part of the fish, there is still over 1,000 feet of drill pipe in the bottom. This well is not as favorably located as No. 1 Elsinore, but nevertheless stands an excellent chance of getting commercial production if the hole can be cleaned out and drilling resumed.

Kettleman Middle Dome

Enforcement of the gas conservation law in the North Dome at Kettleman Hills is particularly interesting at present because of the movement to unify development work in the Middle Dome where the Petroleum Securities recently found sufficient indications to justify the expectation of developing commercial production of oil and gas. The Petroleum Securities' test well in the Middle Dome of Kettleman Hills has been held up with mechanical trouble for the past two months. This project, No. 1 Burbank, was carried down to 9,332 feet and subsequently plugged back to 9,208 feet, from which depth it came in flowing approximately 1,500 bbls. of crude, 1,200 bbls. of water and 10,000,000 feet of gas per day. Approximately 4,000 feet of pipe is still in the hole and the outlook for an early recovery is not promising. The Standard Oil Co.'s offset in the Middle Dome has just passed the 7,400-foot level but this well, No. 6-29 V, still has another 1,500 or 2,000 feet to go before drilling operations are concluded.

Tentative plans have been completed for the unification of drilling and production activities in the Middle Dome and it is likely a general session of interested operators will be held. Preliminary plans have been in the hands of operators for some time and are being carefully studied so that no unusual delay will result in working out final details. It appears probable considerable difficulty will be experienced in determining the amount of acreage to be included in the Middle Dome association. Location of the red and blue lines marking the proven and potentially productive acreage in the North Dome have been found fairly accurate, although subsequent development will probably result in the extension of the blue and red lines in the extreme eastern and western edges. This is particularly true of the Huffman area where development work during the past few months tends to indicate the engineering committee was too conservative. There can be no objection if the red and blue lines in the Middle Domes are as accurate as those in the North Dome.

Dominguez

The Associated Oil Co. completed No. 11 De Francis, a new well in the Dominguez Field, early in the week and preparations were immediately started to redrill and deepen No. 12 on the same lease. The Associated's new well, bottomed at 4,430 feet and finished with a 9-inch water string landed and cemented at 4,222 feet and a 5¾-inch liner carrying 209 feet of perforated, was brought in flowing 2,036 bbls. of exceptionally clean 29.3 gravity oil and 1,200,000 feet of gas per day. The Shell Oil Co. is running two strings in the Dominguez Field at present and, judging by their status, should finish Nos. 42 and 101 Reyes within 30 days. The Union Oil Co. should also chalk up two completions within 30 days as No. 28 Callender and No. 18 Hellman are nearing the 4,000-foot-level. No. 5 Carson, spudded in early in the week, will follow No. 28 Callender and No. 18 Hellman into production during the latter part of March or early in April. The Union has been making exceptionally fast footage in the Dominguez Field due to co-ordinated action and the use of improved drilling equipment.

Long Beach

The R. R. Bush Oil Co., which, in addition to being a producing company, is a refiner and marketer, recompleted No. 1 Brennecke in the Frog Pond section of the Long Beach Field early in the week. This well was returned to production pumping 448 bbls. of 26.9 gravity oil cutting 2 per cent after the hole had been plugged back from 6,475 feet to 4,825 feet and the 4½-inch perforated from 4,685 feet to 4,825 feet. The Chiksan Oil Co.'s No. 1 Reidman, completed about 10 days ago, established a potential daily production of 1,105 bbls. per day late this week. The Chiksan experienced some difficulty in finishing this well as it did not have sufficient gas to result in a natural flow and at the same time had a little too much gas for the pumps to handle. After being agitated for several days, the flow began to increase and after establishing its potential to the satisfaction of the umpire's office it was cut back to 730 bbls. per day. There is very little drilling under way in the Long Beach Field although several operators are making an attempt to stimulate production by reconditioning producing wells.

Inglewood

E. K. Allison Syndicate put No. 1 Moynier on a production test during the week, but this deep test, on the edge of the Inglewood Field, failed to result in a natural flow after several days of artificial stimulation. Pumping equipment is being installed and the well should be put on the beam some time in a few days. The fluid level stands around 2,500 feet but it is not known whether the column is all oil or oil and water. The well showed some oil and a little gas during swabbing operations but did not look any too impressive, although the company may be successful in finishing a small pumping well. The Baldwin Hills Syndicate has decided to land a string of casing in its No. 1 Sentous at 4,000 feet following the coring of a good-looking oil sand just above this point. Several wells in both wildcat and proven territory have been delayed for several weeks due to exceptionally heavy rains but drilling operations are back to normal.

Playa Del Rey

The Union has just completed rig construction for No. 4 Del Rey, a new well to be drilled in the Playa Del Rey Field and the crew is rigging up rotary drilling equipment preparatory to an early spud. The company has been working on this location for several weeks as the field department, in addition to being delayed by heavy rains, found it necessary to build up an island in the center of the swamp area before rig construction could be started. A portion of this lease and adjoining acreage was used as a duck preserve for several years previous to the discovery of the Playa Del Rey Field. The Ohio Oil Co. successfully completed No. 12 Recreation in the Playa Del Rey Field during the week and this new well, finished in the shallow zone at 3,85[illegible] feet after being plugged back from 4,18[illegible]

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Feb. 13, 1932		Feb. 6, 1932			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	.....	409,475
Gasoline	112,761	16,109	.....	.....	698,745	1,976,513
Foreign exports—						
Crude oil	216,697	30,957	323,537	46,227	1,162,513	1,128,089
Fuel oil	229,512	32,787	203,390	29,127	1,179,396	1,737,062
Diesel and gas oil	176,917	25,274	4,996	714	309,982	438,130
Gasoline	91,095	13,014	144,347	20,621	1,115,169	1,404,273
Kerosene	100,065	14,295	57,725	8,246	342,467	174,755
Naphtha distillates	.....	.....	.....	.....	41,175	.....
Coastwise-domestic—						
Crude oil	187,585	26,798	436,051	62,293	2,010,339	1,888,664
Fuel oil	269,447	38,492	299,125	42,732	2,061,954	2,324,794
Diesel and gas oil	35,482	5,069	19,375	2,768	281,331	258,054
Gasoline	377,732	53,962	144,965	20,709	1,525,227	1,393,651
Kerosene	9,104	1,301	.....	.....	25,631	63,281

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Gasoline	.....	.....	.....	.....	.....	63,975
Lubricants	.....	.....	.....	.....	.....	11,000
Foreign exports—						
Crude oil	.....	.....	.....	.....	57,325	6,010
Fuel oil	.....	.....	.....	.....	380,408	62,610
Diesel and gas oil	.....	.....	.....	.....	110,462	113,156
Gasoline	169,468	24,210	146,346	20,909	535,354	232,155
Kerosene	.....	.....	75,864	11,266	185,350	190,412
Lubricants	.....	.....	8,225	1,175	8,225	.....
Coastwise-Domestic—						
Fuel oil	8,060	1,151	81,730	11,676	324,132	382,839
Diesel and gas oil	.....	.....	6,171	882	116,819	.....
Gasoline	.....	.....	146,799	20,971	541,210	335,542
Kerosene	.....	.....	10,857	1,551	10,857	16,877

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feet, is doing 635 bbls. of 23.4 gravity oil and 470,000 feet of gas per day.

Seal Beach

The Standard has started rig construction for No. 25 San Gabriel, a new well to be drilled in the Seal Beach Field, and it is possible the bit will begin making hole around March 5. The Continental's No. 26 Selover in this field is rotating in a gray sandy shale at 6,150 feet. In the West Voyote Field, the Standard has decided to finish its five drilling wells in the deep zone instead of stopping the drill in the present productive horizon, which is picked up at approximately the 4,500-foot level. One of these wells, No. 50 Emery, is drilling through the upper zone. The St. Helens Petroleum is making preparations to land and cement a string of casing in its No. 1 Walsh, a former upper zone producer in the Rosecrans Field, which has been redrilled and deepened to 5,868 feet. It has been more than a year since any development work has been done in the Rosecrans Field, although several wells have been abandoned because of depletion. Bowen Brothers are reconditioning their No. 15 Athens in the Rosecrans Field and hope to increase production after cleaning out the hole to bottom at 4,429 feet and then washing out the perforations.

Round Mountain

The Chanslor-Canfield Midway Oil Co. added a new well to its producers in the Round Mountain Field of Kern County when No. 5 in Section 6-28-29 was brought in on the beam pumping 440 bbls. of exceptionally clean 15.6 gravity oil per day from 1,665 feet. Drilling operations have shown a slight tapering off for several weeks and, while rotary equipment is being rigged up in two new wells, development work in the Round Mountain Field is expected to be negligible for several months. There also seems to be a tendency to reduce drilling operations in the Fruitvale Field due, in all probability, to the inability of producers to market current production. During the latter part of last year operators acquired a number of the one-acre tracts in the Fairhaven section and were all set to start 15 or 20 new wells by January 1. This additional development was predicated on the assumption that crude oil prices would be increased early this year but with no change having been made operators are now content to let matters drop, at least so far as the Fruitvale Field is concerned. The Bankline Oil Co. and the Mohawk Oil Co. are rigging up rotary equipment for two new wells and they will probably get under way within 10 days. The Sea Hawk Petroleum Co. staked location for two new wells in this field several weeks ago but nothing has been done toward the starting of actual drilling.

Buttonwillow

The General Petroleum has resumed work on No. 1 Morris, a gas well which the company finished in the Buttonwillow Field more than a year ago, and will attempt to return it to production. This project was good for approximately 15,000,000 feet of gas per day upon completion but the company has been unable to bring it back after the long period of inactivity. The well, bottomed at 2,615 feet, has a string of 11¾-inch landed and cemented at 2,425 feet. The company ran in a string of 2½-inch tubing and has been attempting for several days to blow the well in with natural gas secured from the Milham Exploration Co. It is customary to blow in these gas wells by injecting gas betweeen the oil string and the tubing as this pressure blows out the drilling fluid through the tubing and this is in turn followed by formation gas.

The Milham Exploration Co., discoverer of the Buttonwillow gas field of Kern County, secured a satisfactory water shutoff on No. 10 Kern, bottomed at 2,510 feet, and should list this project as a potential commercial gas producer soon. The company has staked location for No. 1 Whitaker, a new well to be drilled in Section 8-28-23, and spud should be made some time within the next few weeks. It is the intention to finish both No. 10 and No. 1 Whitaker in the first, or upper gas zone. The Milham Exploration Co. has definitely found three productive gas horizons in the Buttonwillow gas field up to the present. This is of interest because the Buttonwillow gas field may ultimately be classed as an oil field. This is only a possibility but at the same time the geological formations at Buttonwillow are believed to be favorable to the accumulation of oil and gas. It is not the intention of the Milham interests to drill a deep test for oil at present, as this projected work will be held back until conditions improve. The Graham & Loftus Oil Co. is drilling a deep test in this general area and, while it is outside the proven limits of the Buttonwillow Field, it should throw considerable light on the deep subsurface geological formation. No. 1 Carmel of the Graham & Loftus Oil Co. in Section 20-27-22 has just passed the 6,200-foot level.

Semitropic District

The Fullerton Oil Co. focused the attention of operators on the Semitropic district of Kern County during the week when its core hole in Section 9-27-23 blew in as a gas well from the 2,600-foot level. The flow was killed and the well has been abandoned. Preparations are being made to drill a fourth structure survey hole in this vicinity within two weeks. If sufficient geological data is secured and evidence of a structure found, the Fullerton Oil Co. will drill a deep test in an effort to open up a new oil field. The gas blowout in the Fullerton Oil Co.'s well was not of any great volume and no difficulty was experienced as the hole mudded up and choked off the gas zone in a very short time. The General Petroleum finished No. 3 More in the Goleta gas field of Santa Barbara County early in the week and the crew was immediately transferred to No. 1 Hollister, a new well. No. 3 More, which

(Continued on Page 55)

MICHIGAN GETS 1,400-BBL. WELL IN MT. PLEASANT-MIDLAND FIELD

By George A. Whitney

MOUNT PLEASANT, Mich., Feb. 27. Another large oil producer has been developed in the Mount Pleasant-Midland Field, the Pure Oil Co.'s No. B-2, located 990 feet from the north and west lines of the Edward Barnard farm, SE NW SW Section 10, Greendale Township, Midland County, and north from the 17 producers in the East Pool, which is reported with an initial of 1,400 bbls. First pay was found in the Dundee at 3,543 feet and the big pay from 3,551-72 feet.

The Talbot Oil Co. announced intention of drilling two tests on the State C lease east of the Morrison farm in Greendale Township, Midland County, and is also planning a test in Section 35, Geneva Township, far to the north of the East Pool.

Tanner and others announce they will put down a test in Section 4, Greendale Township, Midland County, approximately 2 miles north of the East Pool, and reports are that Pure Oil Co. will probably start four offsets to the expected Tanner test. Michigan Oil & Gas Co. has made a location for No. 1 on the Raynor farm, Section 12, Greendale Township, also in Midland County.

In Isabella County, Gilmore Township, Frank L. Maire and others' test, 650 feet from the north line and 330 feet from the east line of the Earl F. Wilson, NE SE NE Section 12, struck water in the Marshall sand and it will be drilled to the Dundee in hope of finding oil, but gas was being looked for in the Marshall sand.

W. L. McClanahan is arranging to drill a test on the Hughes estate, in Section 20, Geneva Township, Midland County.

W. Hunter Atha made a location 660 feet from the south and west lines of the Chemical State Savings Bank land, SW SE Section 21, Ingersoll Township, Midland County. Fred Sias made a location 326 feet from the north line and 113 from the east line of the Merrifield-Nelson, Jerome Township, Midland County.

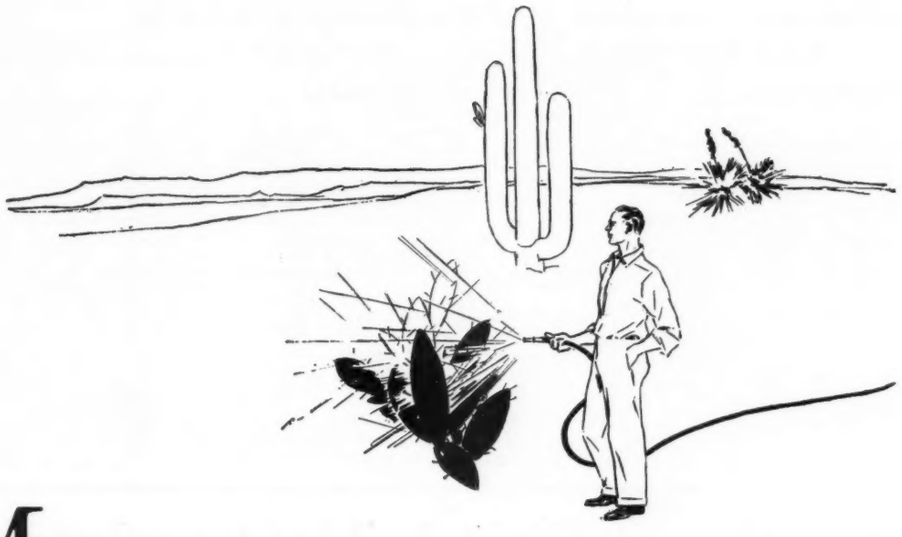
Edward DuVal and others made a location 738 feet from the south line and 315 feet from the west line of the Oscar Weirick, NE SE Section 31, Elbridge Township, Oceana County, in the western part of Michigan.

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.-T.-R.	Depth	Status
Standard, No. 1 Santa Rosa Island, Santa Barbara Co.	.....	....	building road
Barnsdall, No. 1 Los Alamos, Santa Barbara Co.	31- 8-33	2,377	sd. sh. drilling
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	8,566	sidetracking
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,450	suspended
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	4,375	gas well—idle
General Pet., No. 4 Goleta, Santa Barbara Co.	10- 4-29	1,211	sd. sh. drilling
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,099	suspended
Johnson & Strickland, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,886	suspended
The Texas Company, No. 2 Carpinteria, Santa Barbara Co.	34- 4-28	718	suspended
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Pacific Finance Co., No. 1 Carpinteria, Santa Barbara Co.	Tideland	2,011	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	2,270	test W.S.O.
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	2,591	suspended
Union, No. 1 Calumet, Ventura Co.	3- 3-19	....	location
Woodruff Oil Co., No. 1 Miguelito, Ventura Co.	4- 3-24	....	location
American Oil Co., No. 1 Conejo, Ventura Co.	33- 2-20	1,590	hd. sd. drilling
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	6,194	sd. sh. drilling
General Pet., No. 1 Buttonwillow, Kern Co.	6-28-23	2,615	prod. test.
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 10 Buttonwillow, Kern Co.	5-28-23	2,570	sd. sh. drilling
Purman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	3,190	sd. sh. drilling
Weiport Oil Co., No. 8 McKittrick, Kern Co.	26-29-21	1,200	sd. sh. drilling
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,380	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	8,170	hd. sd. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	suspended
Rio Cal Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	3,850	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Fullerton Oil Co., No. 3 Semitropic, Kern Co.	25-27-23	2,597	gas blowout
Standard, No. 1 Devils Den, Kern Co.	14-25-16	1,600	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	17-26-18	3,225	fishing
Totem Oil Co., No. 1 Devils Den, Kern Co.	29-25-19	mtl.	building rig
Signal Oil Co., No. 1 Blackwell Corner, Kern Co.	15-26-19	106	suspended
Regina Oil Corp., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	4,000	suspended
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11-9	1,130	hd. sd. drilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	1,030	redrilling
Barnsdall Oil Co., No. 1 Tejon, Kern Co.	15-11-20	3,702	sd. sh. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Descanso Oil Co., No. 1 Tejon, Kern Co.	31-11-19	1,412	sd. sh. drilling
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Kingsburg Expl. Co., No. 1 Kingsburg, Fresno Co.	30-16-23	2,390	suspended
Kent & McDonald, No. 1 Carrizo, San Luis Obispo Co.	3-32-22	2,630	redrilling
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	redrilling
Indian Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	26-31-12	3,380	suspended
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	5-31-13	3,070	redrilling
Paso Robles Oil Co., No. 1 Edna, San Luis Obispo Co.	27-27-11	4,160	suspended
Emerich Oil Co., No. 1 Atascadero, San Luis Obispo Co.	13-28-12	1,794	sd. sh. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	1-29-12	1,650	suspended
Pacific Inland, Well No. 1, Monterey Co.	19-23-15	2,280	suspended
Brown, W. F., No. 1 Parkfield, Monterey Co.	15-23-14	1,051	cleaning out
Guess, E. B., No. 1 Corcoran, Kings Co.	7-21-21	6,197	suspended
Niel, W. B., No. 1 Dudley Ridge, Kings Co.	32-22-20	rig	rigged up
Guess, E. B., No. 1 Dudley Ridge, Kings Co.	12-22-22	2,210	sd. sh. drilling
Irma Investment Co., No. 2 Dudley Ridge, Kings Co.	7-23-20	1,224	testing
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	1,125	cleaning out
Valley Expl. Co., No. 1 Dudley Ridge, Kings Co.	12-23-19	1,302	cemented
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	5,894	suspended
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Tulare Basin Gas Co., Well No. 1, Kings Co.	2-23-19	1,155	bl. sh. drilling
Tulare Oil Co., No. 1 Corcoran, Tulare Co.	20-22-22	rig	suspended
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,200	suspended
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Gravity Expl. Co., No. 1 Alpaugh, Tulare Co.	11-24-23	rig	suspended
Ellis & Sanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,920	plus 1,487 ft.
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,894	suspended
Napa Oil Co., No. 1 Griffith, Napa Co.	7- 8-3	2,848	cemented
Orinda Pet., Well No. 1, Contra Costa Co.	32- 1-3	2,120	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15-4	1,040	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,750	suspended
Hilderbrandt, R., No. 1 Crows Landing, Stanislaus Co.	36- 6-7	1,130	suspended
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23-3	3,040	suspended
Union Oil Co., No. 1 Tracy, San Joaquin Co.	14- 3-6	5,230	bl. sh. drilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo County	23-12-3	2,005	resume work

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.-T.-R.	Depth	Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	7,414	suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,151	suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Lawndale Pioneers, Inc., No. 1 Peck, Los Angeles Co.	20- 3-14	6,350	sd. sh. drilling
Mohawk Pet., No. 1 El Nido, Los Angeles Co.	29- 3-14	6,260	al andoned
Ranger Pet. Co., No. 1 Watson, Los Angeles Co.	28- 4-13	3,785	cleaning out
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2-9	2,250	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	1,202	redrilling
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,902	suspended
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	5,060	recemented
Wardell & Menichini, No. 1 Montebello, Los Angeles Co.	7- 2-11	rig	rigged up
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	2,015	suspended
Davidson Oil Co., No. 1 Monterey Park, Los Angeles Co.	32- 1-12	....	location
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	1,004	suspended
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,460	cleaning out
Marble, Willard, No. 1 Chatsworth, Los Angeles Co.	6- 2-16	1,395	suspended
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	7,115	gr. sd. drilling
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4-6	1,110	suspended
Spindletop Oil Co., No. 1 Salton Sea, Riverside Co.	25- 7-10	3,590	sd. sh. drilling
Duncan, N. I., No. 1 Sagebrush, Riverside Co.	8- 4-6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1-2	2,392	redrilling
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	635	sd. sh. drilling
Woods, D. H., No. 1 Salton Sea, Imperial Co.	7-11-16	674	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13-4	2,519	suspended
Borderland Oil Co., No. 2 Encinitas, San Diego Co.	12-13-4	2,575	sd. sh. drilling
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18-2	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18-1	1,700	cemented
Oklahoma Oil Corp., No. 1 Palms, San Diego Co.	25-11-8	1,499	sd. sh. drilling



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More Development Expected in Lima

Lucas County, Ohio, Shows Revival of Work. Eleven Completions in Central Ohio and 17 Locations. Four Completions in Kentucky

By George A. Whitney
Staff Correspondent, Central West Fields

LIMA, Ohio, Feb. 29.—The news that the Solar Refining Co. of this city has been remodeled for the refining of Lima crude will no doubt bring about more development work in the old defined areas, as there are still many locations untouched by the drill within the present limits of the old field, and there are possibilities of adding more territory on all sides of the present producing areas. While more than 40,000 wells were drilled in the field, it may by additional test work add much profitable producing area.

In Wyandot County, McPheron, Miller & Cook's No. 4 on the Bowman-Billhart farm, Section 21, Tymochtee Township, produced only 1 bbl. from the Trenton lime from 1,373-83 feet. Murphy and others' test on the C. S. Grubel farm, Section 7, Crawford Township, same county, produced an initial of 4 bbls. from the Trenton from 1,466-68 feet. No report was forthcoming from the test being made by O'Neal and others on the Homer Wonder farm, Section 1, same township.

In the Tiffin Field, Liberty Township, Seneca County, M. E. Kiser's test on the L. E. Koerper farm, Section 24, is a light gas well as is L. Curry's No. 1 Nicholas Weber farm, same section. Arthur Geyer drilled a dry hole in No. 3 on the F. E. Baldwin farm, Section 30, Clinton Township, same county. In Hopewell Township, same county, J. L. Barrett is drilling No. 1 T. H. Einsel, Section 1. J. H. Murphy & Son's are drilling No. 3 Mary Getulding farm, Section 11. The Tiffin Industrial Gas Co. is drilling No. 2 Frank Feael, Section 2, and the Sandusky Gas Co. is drilling for gas on the Lloyd Hoover farm, Section 3, same township.

Revival in Lucas County

Lucas County shows a revival in new development work, located westward from Toledo. In Springfield Township, of this county, R. B. Weed and others have a rig in for a second test on the Emmett Holloway farm, Section 29. In Monclova Township, John Doblinger has a rig on the Knauss farm, Section 8, and is due for completion on the Solomon Butts farm, same section. M. Gray and others are due for completion of No. 1 Keil Brothers farm, Section 28, same township, and Dillon & McFrederick are also due for completion on the H. A. Goldbrath farm, Section 29, same township.

Quite a number of old-time producing wells were abandoned during the week in Wood County. In Montgomery Township, in the old Freeport Field, the Ohio Oil Co. abandoned Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 E. Crossman farm, Section 11; Nos 1, 2 and 3 O. Wolcott farm, Section 2, and Nos. 4, 5, 6 and 7, F. Fairbanks farm, Section 10, while A. L. Johnson and others pulled out Nos. 1, 2, 3, 4, 5, 6, 7 and 8 on the C. C. Adams farm, Section 19, same township. In Troy Township, Onsel Brothers and others pulled out No. 1 William Burkholder farm, Section 16, and No. 1 on the F. E. H. Sampson farm, Section 23.

In Sandusky County, Woodville Township, the Ohio Oil Co. abandoned No. 5 Henry Bruns farm, Section 17, and William Magsig No. 4 on his own farm in Section 26.

In Ottawa County, Allen Township, the Ohio Oil Co. abandoned No. 5 P. Johnson farm, Section 3; Nos. 1 and 5 C. Michelson farm, Section 3, and Nos 1, 2, 3, 4 and 5 Adam Felbinger, Section 3, same township.

CENTRAL OHIO

Eleven completions were reported from the Central Ohio Field, of which three were dry holes and eight gas wells, there being no oil producers. There were eight new locations made and nine wells started spudding, a total of 17 for the week, which indicates that more or less work will be done throughout the winter. Spring should bring more activity.

In Ashland County the only change was a location in Jackson Township, which has started spudding.

In Medina County, the Preston Oil Co. set a stake for No. 2-1 512 M. H. Packard farm, Section 27, Chatham Township, and Edson Sons are making ready to drill additional wells on their holdings in the same field, while the Oko Oil & Gas Co. will continue operations on its holdings in the Chatham Field where heavy oil is sought after. McMillan and others are drilling on the Luke W. Battle farm, Section 3, York Township, same county.

In Summitt County, Wiser Oil Co. is drilling on the O. C. Conlon farm, Lot 84, Bath Township.

In Licking County, Granville Township, Wehrle Gas Co.'s No. 4 Fred W. Hobart heirs farm, Lots 5 and 6, is a dry hole from 2,260-75 feet. Emerald Petroleum Co. is drilling on the Homer Barcus farm, Section 10, Fallsburg Township, same county.

In Muskingum County, Ohio Fuel Gas Co.'s No. 1-5,600 on the J. P. Gibson farm, Sections 23-24, Brush Creek Township, is reported dry at 4,113 feet. Palmer & Geisinger's No. 1 Bertha E. Drake farm, Section 3, same township, is a fair gas well in the Clinton formation from 4,000-86 feet. The Atha Co. is drilling on the Jacob S. Morrison farm, Section 15, Union Township, same county.

In Athens County, Fred Gunthal and others' test on the I. S. Swartz farm, Section 25, Carthage Township, is a light gas well, as a showing of gas was found at 960 feet and another showing in the Keener sand at 1,225 feet. Standard Natural Gas Co. found an average gas producer in No. 8 on the James Bowden farm, Section 16, Waterloo Township, in the Berea sand from 1,146-50 feet, and is drilling No. 1 J. R. Young farm, Section 12, same township.

In Tuscarawas County, Sandy Township, the Wiser Oil Co.'s test on the

(Continued on Page 55)

Southeast Ohio Is Holding Interest

Test Thought to Lie on Edge of New Pool in Washington County. Calhoun and Roane Counties Most Active in West Virginia

By Staff Correspondent

PITTSBURGH, Pa., Feb. 29.—Southeast Ohio continues to hold the interest of operators with the test of William Harris and others on the Joseph Crago farm at the head of Cady Run in Grandview Township, Washington County. This well flowed 300 bbls. in the earlier part of the week before an attempt was made to drill the well deeper in what is presumed to be the Third Warren sand which was struck at 2,916 feet. The hole is less than 6 inches in that formation, and is open in both the Injun and Squaw sands. In an attempt to swab out the hole preparatory to casing off the Injun and Squaw sands, the well made another flow, caused by the agitation, which blew the tools out of the hole and sprayed over the top of the derrick and the well was again shut in.

There is some difference of opinion on the formation of this test, some holding the structure is the Speechley sand but it is more generally accepted as the Third Warren sand. About three years ago, and several miles southwest of the Crago well, another well was completed in the same formation which started producing about one-half barrel a day natural and which today, without having been shot, is making 1½ bbls. a day. The structure there was 37 feet thick. The opinion has been formed that this well, on Davis Run, may lie on the edge of a new pool.

That new tests will be drilled is apparent from the leasing which has been active in both Grandview and Independence Townships. Among the larger operators holding leases, in addition to those reported last week, are the Wiser Oil Co. of Sistersville, W. Va., and F. H. Leidecker of Marietta, Ohio.

From other parts of the three divisions of the lower eastern fields, reports were very meager. Five new gas wells, one small oil producer, and three dry holes comprised the total work for the past week.

SOUTHEAST OHIO

Very little progress was made in Southeast Ohio during the week. In Licking County, the Peoples Banking & Trust Co. account No. 32 of Marietta, Ohio, drilled its old No. 5 on the J. W. L. Motherspan farm, Lot 12, Franklin Township, down from the Berea sand in the Cinnamon sand to a depth of 1,550 feet. This formation proved dry and the well will be plugged back again to the Berea sand where it will continue as a small pumper. The Cinnamon sand was expected to prove a gas streak.

In Medina County, E. R. Edson & Son Co., drilled No. 33 on the George W. Packard No. 1 lease on Lot 4, Section 13, Chatham Township. It proved dry in the shallow sand at a depth of 417 feet. In the northeast quarter of Harrisville Township, Medina County, and on Lot 6, F. Barnhard and others drilled No. 5 on the J. W. Funk farm on which there are two fair producers also in the shallow structure. No. 5 struck a fault and proved dry.

Drilling in Ohio

In Perry County, E. W. English and others have reached 3,290 feet on the Hugh McTague farm in Section 12, Pipe Township, and shut down temporarily. In Reading Township, the Pure Oil Co., Central Ohio division, has reached 2,300 feet on the Pius Snyder farm in Section 11. In the same township, the Mid-East Gas Co. has started drilling on the Deaver Hiers farm in Section 10 and has passed the 300-foot mark. In Madison Township the Atha Oil Co. is drilling on the Samuel Frazier farm in Section 9 and reached 3,050 feet and shut down with no report of completion.

In Licking County the Emerald Petroleum Co. is down 2,200 feet on the S. A. Tarlton farm, Section 8, Fallsbury Township, the scene of a two-year-old pool. The pay is usually in the Clinton sand. J. W. Rutledge and others have the timbers on the lot for a fourth well on the William D. Booth farm in Section 14 of the same township.

WEST VIRGINIA

There were a few more than usual completions in West Virginia and the totals for the week include five gas wells and two new producers. None of the wells was of any size or test importance. In Harvey district, Mingo County, W. H. Norton, trustee, completed No. 4 on the Riley Spaulding farm at 1,060 feet and 23 feet in the Maxon sand. It is showing for a fair producer and is rated at 8 bbls. a day.

In Pleasants County, on the waters of Shultz Run in Jefferson district, the Dye Farm Oil Co. completed a test on the Lavina Dye farm in the Maxon sand which is showing for a 1½-bbl. pumper. On Fishing Creek, Grant district, Wetzel County, the United Pipe & Supply Co. increased the production of its No. 2 on the William Wyatt farm. It was formerly a half barrel producer in the Gordon sand and the casing was ripped opening up the Big Injun sand. The well is now making about 10 bbls. a day.

Gas Wells

Activity in Calhoun County has lessened during the past weeks and there was but one completion. In Sherman district, Poling and Mollahan completed a test on the Luther Little farm at 2,014 feet, the Injun sand. It is showing for a fair gas well, natural.

In Lincoln County, there were three completions. In Union district, the Woodall Gas Co. completed a second test on the Charlie Honaker farm in the Berea sand at 2,436 feet. It will make a small gas well. In the same district, the Hamlin Natural Gas Co. drilled its test on the Roy and Hal Adkins farm to 2,128 feet and completed it as a gas well showing for over 100,000 feet a day. In Jefferson district, the United Fuel Gas Co. completed No. 8 on the Courtney Land Co. lease at 2,363 feet, which is also showing for a small gas well.

In Ritchie County, on the Left Fork of MacFarlan Creek, the Lewis Drilling Co. completed a test on the J. S. Sandy farm in Murphy district. It will make a small gas well in the Big Injun sand.

Drilling in West Virginia

In comparison with the rest of the West Virginia Field, Calhoun and Roane Counties continue fairly active, and present the greater part of the drilling at the present time. Lincoln County is next in line. In Roane County a new rig is being built to continue drilling the deepest test in the East which is the United Fuel Gas Co.'s No. 1 on the J. W. Hinzman farm in Curtis district. At 9,100 feet, the tools stuck in the hole and after fishing the tools, the rig burned. In the same district, W. B. Heater has reached 400 feet on the T. C. Burdette farm, and on the F. H. Bee farm, E. R. Lester and others are drilling up the bailer at a depth of 1,400 feet. In Spencer district,

(Continued on Page 61)

Natural Gas Industry Developments

SUMMER AND WINTER GAS RATES PROPOSED

A revised rate schedule, which it is said would provide lower winter costs and slightly higher summer bills to consumers in 26 Oklahoma towns, has been filed with the State Corporation Commission by the Community Natural Gas Co.

The rate application was filed as final arguments in a hearing into consolidated rate cases of the Lone Star Gas Co. and the Community Natural, subsidiaries of the Lone Star Gas Corp., got under way before the commission.

The present gross rate is $1.50 per 1,000 feet, with 10 per cent off with prompt payment, making the net rate $1.35, and 67½ cents net for all over 1,000 feet. Under the new schedule the net rate would be $1.60 for the first 1,000 feet, $1.35 for the second 1,000, 85 cents per 1,000 for the next 3,000, 50 cents per 1,000 for the next 20,000, and 45 cents per 1,000 for all over 25,000 feet.

The company said in its application that the "proposed rates are more equitable and fair, both to the consumer and the company, than the present rates." It was said that the schedule provides a cheaper rate for heating gas, "and thereby tends to minimize and eliminate the relatively high winter bills which constitute the most prolific source of complaint."

The summer bills, which are low under the existing rates, would be slightly higher but any summer bill would not be more than $1 higher, while a winter bill could be several dollars smaller, the company claimed.

The company contended that it served virtually all consumers under the present schedule at a loss during the summer. The rate application asked that the new schedule be inaugurated "on trial."

With a hearing instituted by the committee to reduce rates charged in 15 state towns and cities, the Consolidated Gas Service Co. filed a motion to dismiss the rate reduction activities in connection with its service at Mangum and Granite. The company stated that it does not distribute gas in the two towns but merely brings it to the city gates.

1931 GAS REVENUES DECLINE 5 PER CENT

NEW YORK, Feb. 29.—Total revenues of manufactured and natural gas utilities for the full year 1931 aggregated $646,619,772, a decrease of 5 per cent from the revenues of $682,353,203 recorded in 1930, according to the American Gas Association.

Revenues of manufactured gas companies last year were $373,225,622, a decrease of 2.8 per cent from those of the previous year. Natural gas utility revenues during the year were $275,794,150, a decrease of approximately 8 per cent from 1930 levels.

Manufactured gas sales last year were 349,146,454,000 feet, while natural gas sales for the year were 678,433,837,000 feet, declines of 2.6 per cent and 9 per cent, respectively.

The above figures are based on the year's operations of companies representing 90 per cent of the gas utility industry.

ORGANIZE LYCOMING CORP.

NEW YORK, Mar. 1.—Lycoming United Gas Corp. of Delaware has been organized with capitalization of 1,575,000 shares of common stock. The company is affiliated with Standard Oil Co. (New Jersey) and Columbia Gas & Electric Corp., and will operate the Tioga gas properties of the two companies.

CHEMICAL USE OF ALBERTA GAS DISCUSSED BY DR. E. H. BOOMER

CHATHAM, Ontario, Feb. 27.—In a recent address to the Lethbridge branch of the Engineering Institute of Canada, Dr. E. H. Boomer of the department of chemistry, University of Alberta, discussed "Uses of Natural Gas in the Chemical Industry" with especial reference to his own experiments in the possible utilization of Alberta waste gases. Dr. Boomer said in part:

"I propose to speak first on the conditions with regard to natural gas in this province that led me to initiate a variety of chemical researches on the utilization of the gas and, second, on the more promising of the researches that have been done and are under way.

"Regarding the natural gas fields of Alberta, you are doubtless familiar with them in a general way. There are developed resources outside of the Turner Valley Field capable of producing possibly 400,000,000 feet per day which enter only as a future consideration to this work. These gases are dry, containing little other than methane, and the wells producing them are under control. The chief focus of attention is the Turner Valley Field. When it first came to my attention some five years ago, about 250,000,000 feet of gas was being wasted daily by burning in the field. To a chemist it was a shocking sight and even more shocking has been the increase in wastage to a peak approaching 600,000,000 feet per day about one year ago. The waste during the latter part of 1931 was between 380,000,000 and 400,000,000 feet per day, and was only that size because of lack of market for the recovered naphtha. In the absence of the well-known depression, the waste would undoubtedly have been larger, even larger than ever before.

"Under present conditions the life of the field developed is very limited, probably less than five years. Twenty years is the minimum that can be considered from the industrial point of view and that is only possible by taking out such gas as can be profitably used.

"The average gas production per barrel of naphtha recovered is the usual criterion of quality of a field. In the Turner Valley 136,000 feet of gas is taken out of the ground for every barrel of naphtha. The best well gives a barrel for about 19,000 feet and they go as high as 1 bbl. per 730,000 feet. On top of this, each barrel of crude naphtha recovered at the separators is weathered to not much more than half a barrel before it is fit for the refinery. And that portion lost in weathering the so-called 'stabilizer gas' is the most valuable gas from the chemical point of view.

"The Turner Valley gas is unique in containing an appreciable amount of hydrocarbons lighter than methane, about 12 per cent of ethane, propane and butane besides the lighter liquid hydrocarbons. These are of greater value as chemical raw materials than methane will ever be and possess a greater value as such raw material than as fuel. The reverse is probably true of methane and an important point to bear in mind is the flexibility of chemical industry.

"I propose to discuss three processes, interlinked and dealing with coal or bitumen as well as gas. The first consideration was, obviously, can natural gas be used directly, or can an easily made product of natural gas be use as raw material for establishing industrial processes? The second and most important consideration was the market for such product. In Alberta at present, the biggest market for any product derivable from natural gas is motor fuel and oil. All the other chemical products that may be related to natural gas have markets insignificant by comparison.

"I will deal first with that project which has become the cornerstone of the whole thing, namely, the pyrolysis of natural gas and the stabilizer gases. By pyrolysis is meant simply a heating of the gas itself in the presence of a catalyst or not. Our attention has been confined to the pyrolysis of Alberta natural gases only. We were interested in the yields of liquids, their nature and the resultant gases. The liquids are classed as aromatics; that is to say, they are made up of compounds like benzene (benzol) and its relative polynuclear hydrocarbons. By recycling the gas three times the yield could be pushed up to about 100 gallons per 1,000 feet, a 10 per cent increase.

"This was preliminary work and it is doubtful if anything of commercial application is possible. With Turner Valley gas, the yield is increased enormously. About .75 gallons per 1,000 feet could be obtained on one treatment, .4 gallons of which was light oil and .35 tar. Recycling doubled the yield after a total of four passages. With stabilizer gas, containing a high percentage of gases above methane, there is another jump in yields 3½ to 4 gallons per 1,000 feet being obtained, the light oil fraction running above 2 gallons per 1,000 feet. This is only to be expected. The pyrolysis of the pure hydrocarbons has shown increasing yields as the molecular weight of the substance increased.

"To conclude the discussion of pyrolysis, the production of motor fuels from a dry gas at Viking is not economic at present. The treatment of the waste Turner Valley gases is a border line project but would be profitable if the exit gas were assigned a value equal to the cost of the original gas.

"A year or so ago, work was commenced on Alberta coals. Coal was hydrogenated most rapidly, with minimum coke and gas formation, and the oils were of the highest grade. A standard procedure was used on all coals, using in each case petrolatum and tetralin. The same catalyst, M. 03 was used, it having been found superior to any other. It may be of interest to mention the effect of the catalyst. It speeds up the reaction greatly but does not increase the yields except indirectly. In any hydrogenation process the conditions are such that cracking proceeds. Cracking is to be avoided in leading to much coke and gas and olefinic oil which has a tendency to gum and discolor without very expensive refining.

"One more point in regard to coal hydrogenation which may give it a more promising outlook. It requires hydrogen, and impure hydrogen is quite sufficient, which ties it up with natural gas. It requires tetralin or a like substance which again ties it up with natural gas. Tetralin cannot be produced under 5 cents a pound usually which makes it use under normal circumstances impossible. However, the pyrolysis tar already referred to, which lacks a big market, contains 35 per cent naphthalene and the rest consists of close relatives of naphthalene. We have used pyrolysis tar in place of tetralin and it is equally satisfactory."

SEMINOLE RATES

An order fixing gas rates to be charged Seminole County, Oklahoma, consumers by the State Fuel Supply Co. probably will be issued by the Corporation Commission within the next day or two, Ed Hicks, commission secretary, said.

INSULL EXPECTS LARGE SALES OF NATURAL GAS

CHICAGO, Feb. 29.—Samuel Insull, chairman of the Peoples Gas Light & Coke Co., characterized the introduction of natural gas in Chicago as the "big achievement" of the company in 1931 at the annual meeting of stockholders, at which retiring directors were re-elected.

In his remarks to stockholders, Mr. Insull stated the company's participation in the 1,000-mile natural gas pipe line amounted to one-quarter of the total investment, which was upward of $75,000,000.

"The effects of this natural gas enterprise should be very substantial," he said. "We expect to show in the next few years large increases in the sale of gas for house heating, industrial purposes, for summer service, in office buildings, hotels and apartment buildings and for related uses, where gas is required in substantial quantities."

TWENTY-SIX-INCH LINE FOR SAN FRANCISCO

SAN FRANCISCO, Feb. 27.—Pacific Gas & Electric Co. has announced it would begin construction immediately of a supplementary gas main to supply San Francisco with natural gas. The line, to run from Milpitas, tying in there with Kettleman Hills mains, will cost $1,870,000.

Connections with both the San Joaquin Valley and coast lines will provide additional dependability of supply in case of interruption of service along any one line. The construction will require six months' work of about 200 men. The line will be 45 miles long. It will be 26-inch high-pressure transmission pipe.

NEW WASHINGTON RATES

WASHINGTON, D. C., Feb. 29.—Reductions in the rates of the Washington Gas Light Co. have been agreed to by the Public Utilities Commission. While these rates have not been officially announced it is understood they are $1 for the first 1,000 feet, 90 cents per 1,000 for the next 2,000 feet and 85 cents per 1,000 for all gas used in excess of 3,000 feet.

One-fourth of the gas used here is natural gas coming from West Virginia.

It is said the schedule approved by the commission is approximately $33,000 more than the $210,000 offered by the gas company and most of this difference goes to the domestic consumer. The reduction will average a saving of 6 cents on the bills of domestic consumers. These domestic rates become effective March 1 and commercial rates will be effective April 1.—C. E. K.

SAN DIEGO RATES

LOS ANGELES, Calif., Feb. 27.—The State Railroad Commission has released a decision ordering the San Diego Consolidated Gas & Electric Co. to reduce rates to an extent which, it is said, will result in a saving of $600,000 to gas and electricity consumers.

The commission states it is not passing on its power to order the utility to change to natural gas at this time, but will pass on the question later when it concludes its investigation of rates in the San Diego district.

Wih respect to natural gas, the minimum charge in San Diego was fixed at 90 cents for the first 200 feet and outside at $1.15; 800 feet, 14½ cents per 100; the next 2,000 feet, 12 cents; the next 7,000, 10 cents, and all over that 9 cents per 100.

Personal Paragraphs About Oil Men

W. N. Reagan has been re-elected secretary of the Hancock Oil Company.

* * *

Emil Kluth of the George F. Getty, Inc., has been elected vice president of the Pacific Western Oil Company.

* * *

B. S. SoRelle, district superintendent, Pure Oil Company, Fort Worth, Tex., made a trip to Tulsa February 23 on company business.

* * *

V. C. Fuller, purchasing agent, Gypsy Oil Company, spent several days on a trip over company properties in the Oklahoma fields.

* * *

George Schrup, of the Zingery Oil Map Company, Fort Worth, Tex., who underwent an appendix operation last week, is home again and getting along well.

* * *

Dick Frick, secretary-treasurer, Frick-Reid Supply Corporation, Pittsburgh, Pa., was a visitor at the district offices of the company in Tulsa last week.

* * *

Emil Geppelt, Jr., of the Petroleum Engineering Service, Inc., Dallas, Tex., is in San Antonio doing consulting work for the Texas Petroleum Products Company.

* * *

Clifford W. Lord, formerly with the Buck & Stoddard interests, has been elected executive vice president and general manager of the Bolsa Chica Oil Corporation.

* * *

Dana Hogan, who resigned as an official of the Petroleum Securities Company during the latter part of 1931 and subsequently made a tour of Europe, returned to Los Angeles during the early part of the past week.

* * *

A. E. Haley, who recently spent a brief vacation at Petrolia, Canada, after some months in Borneo, has gone to Mexico to take charge of some of the drilling operations of Royal Dutch-Shell companies operating in that country.

* * *

A. H. Bell of the Continental Oil Company and chairman of the arrangement committee for the Pacific Coast production division of the American Petroleum Institute, is making plans for the annual meeting of this division to be held in Los Angeles some time during March.

* * *

John A. Frost, of the United States Geological Survey, at Farmington, N. Mex., recently started for Salt Lake City by way of Monticello, Utah, but was unable to get through on account of heavy snow blockades. He had to return to Farmington. The highway is not expected to be open until spring.

* * *

M. L. Hough, vice president and treasurer of the Darling Valve Manufacturing Company, of Williamsport, W. Va., is making a trip throughout the Mid-Continent fields, and the East Texas district. Frank Cavanaugh of the same company with headquarters at Houston, is also making the East Texas trip.

* * *

Robert S. Ellison, of Tulsa, president of the Stanolind Crude Oil Purchasing Company, was in Denver the past week on his way to Casper, Wyo., where he was special guest of the Boy Scouts organization. He formerly resided in Casper, his headquarters when vice president of the Midwest Refining Company.

* * *

Charles L. Shirley, petroleum engineer, formerly with Shell Petroleum Corporation, Tulsa, H. H. Kapner, geologist, formerly with Lew Wentz, Ponca City, Okla., and F. X. Sulvbach, valuation engineer, Tulsa, have recently formed a partnership under the firm name of Shirley and Kapner for the purpose of handling engineering, geological and valuation work on a consulting basis. Their office is Room 1124 Hunt Building, Tulsa.

J. L. Dittman, of the Wall Rope Works, is making a business trip in the East Texas territory.

* * *

K. J. Helmholtz, president, Economy Electric Lantern Company, Chicago, was in Tulsa last week.

* * *

C. R. Cook, president of the Cook Paint & Varnish Company, Kansas City, called on trade in Tulsa and vicinity.

* * *

Fred Stork, general manager of the Stork Engineering Company, Inc., Saginaw, Mich., manufacturers of pumping equipment, is in the Mid-Continent area.

Men of the Industry

Earle P. Hindes

Earle P. Hindes is chief geologist for Henry L. Doherty & Company (Cities Service Company) of 60 Wall Street, New York, and as such is the executive head of the company's geological and land division. Mr. Hindes was graduated from the University of Nebraska in 1915, receiving his degree in geology and engineering. After spending some time in the mining business in Colorado and Wyoming, he joined the geological department of the Empire Gas & Fuel Company, the principal petroleum subsidiary of the Doherty organization, at its headquarters office in Bartlesville, Okla.

From 1916 to 1921, except for time spent in the United States Army, Mr. Hindes was engaged in varied phases of field and office geological work, both in this country and in Canada and Mexico. In 1921 he was made assistant chief geologist of the Empire Companies and was placed in charge of the scouting and valuation departments. He continued in this capacity until he became general representative for the company in 1926. In the latter position Mr. Hindes was actively engaged in the purchase of producing properties and general land and geological activities. During 1930 he supervised a survey of the natural gas industry in the United States and Canada for the Cities Service Company. On January 1, 1931, he was transferred to the parent company's main office in New York to assume the responsibilities of his present position.

During the World War Mr. Hindes was in the United States Army Air Service and the A.E.F. He is a member of the American Association of Petroleum Geologists, American Petroleum Institute, American Gas Association and American Institute of Mining and Metallurgical Engineers.

A. E. Fath has returned from a two years' investigation of oil possibilities in Germany.

* * *

R. B. Kelly, petroleum engineer, Pure Oil Company, Fort Worth, Tex., was in Tulsa last week on company business.

* * *

H. B. Van Cleve, vice president and general manager of the Hartol Products Corporation, New York, is on a vacation in Miami, Fla.

* * *

Chester Naramore, general manager of the North European Oil Corporation, Hanover, Germany, has returned on a visit to the United States.

* * *

R. H. Carr, superintendent of production, Pure Oil Company, Chicago, is making a tour of Mid-Continent fields and spent a short time in Tulsa.

* * *

G. Stannard Owen, of the St. Louis office of the National Lead Company, was in Tulsa last week with the new representative for this territory, P. H. Vermillion.

* * *

R. E. Collom of the Continental Oil Company was recently re-elected vice president of the Kettleman North Dome Association at the association's annual meeting.

* * *

Sir Reginald MacLeod, chairman of the Anglo-Egyptian Oilfields, Ltd., London, is receiving the congratulations of his friends on the occasion of his 85th birthday.

* * *

Walter Gray, vice president and sales manager of the Dewey Portland Cement Company, Kansas City, spent a few days in Tulsa last week with H. E. Brooks, local representative.

* * *

J. S. Ross, engineer, Southern States Company, Inc., Shreveport, La., visited Tulsa and Ponca City, Okla., and Wichita, Kans., last week. Mr. Ross is now making his home at 5224 Milam Street, Dallas, Tex.

* * *

Oliver Whiting, mill representative of the South Chester Tube Company, Marietta, Ohio, is spending some time in Texas commuting between the company's district office at Fort Worth, and the East Texas fields.

* * *

Sir Edward M. Mountain, chairman of British Oil Development Company, and Admiral David Wemyss, director of that company, have been visiting Iraq. British Oil Development will develop Iraq oil fields located on the right bank of the Tigris, near the holdings of Iraq Petroleum Company.

* * *

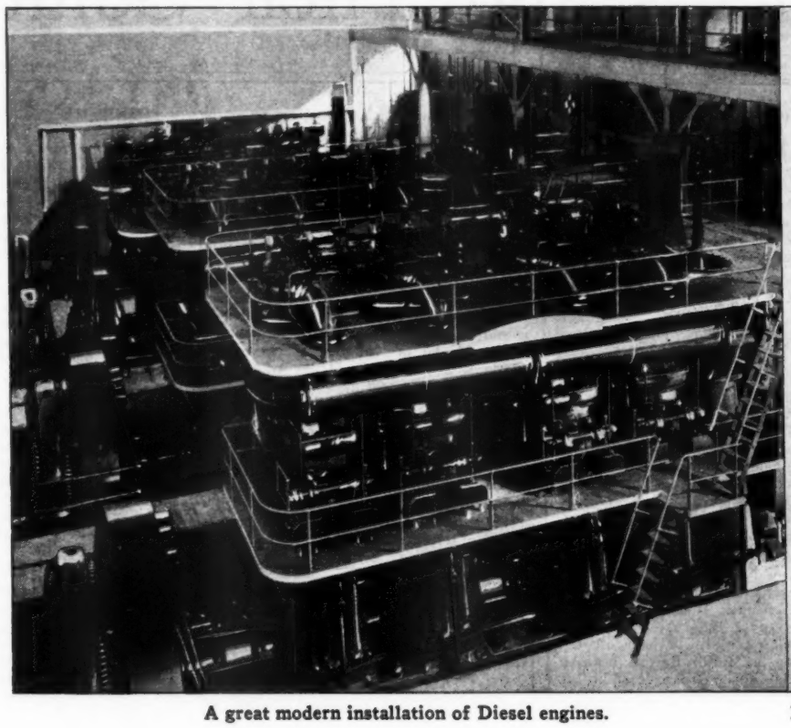
Charles Klein, production superintendent for the Phillips Petroleum Company's Texas division, together with K. E. Beall and Don Knowlton, petroleum engineers for the same company with headquarters in Bartlesville, Okla., have been making an inspection trip of the West Texas fields.

* * *

Amos L. Beaty, president of the American Petroleum Institute, who is to be the principal speaker at the annual meeting of the California Oil and Gas Association to be held in Los Angeles March 10, is expected to spend several days on the Pacific Coast, during which time he will probably make a general survey of existing conditions in California.

* * *

McDonald Burleigh, formerly of the land department of the California Company at Midland, Tex., and Mrs. Peggy Dillon Rohr of Los Angeles, Calif., were married on February 18, at the Mission Inn, Riverside, Calif. For the past three years, Mr. Burleigh has been associated with Oscar Lawler of the legal department of the Standard Oil Company of California in connection with the litigation with the Government over the title to Section 36 in the Elk Hills, Kern County, California, which was decided in favor of the Standard on February 24. The couple will spend their honeymoon in Honolulu.



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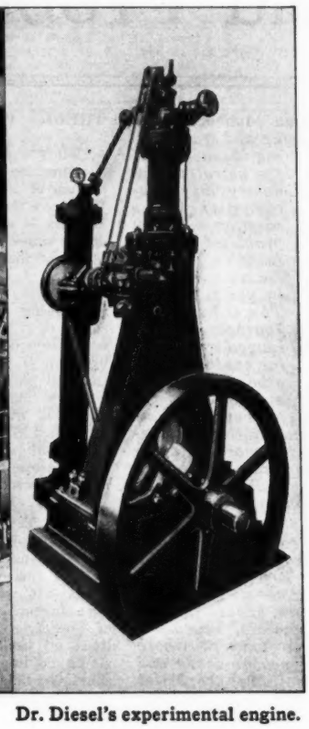

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

GEOLOGIST'S ADVICE NEEDED

If a well drilled 30 years ago 2,100 feet to the Newburg sand in the lower lime was improperly plugged or not plugged at all, how long would the sand be affected? Would 30 years' time correct the trouble and what distance from the well would you drill now? I have been unable to get any log records of the well and I am in doubt as to how near the old well it would be safe for me to drill. According to persons living in the neighborhood the well was a good gas well. It is possible the well was not as deep as 2,100 feet. Some of the older men are not clear on that point and there is a difference of opinion as to the depth.—J. T.

Your problem is interesting, but this department does not have data that will assist you in determining the site for a new test. There should be a record somewhere in the state departments showing where this well was plugged. If you write to the State Geological Survey, Columbus, Ohio, you should be able to learn something about the geological conditions in your field.

Before going to the expense of drilling for a new test it would be prudent to engage a geologist to make a report on the area. His recommendations would be far better than information you can get from persons at a distance from the field, or from general data you can obtain from your state geological department.

Depending upon the memory of persons who have been active in the field may be erroneous because conditions may have changed materially, but a good geologist could give you advice on conditions as they now are, regardless of what happened 30 years ago, and that is what you really want to know.

THEORY OF BOTTOM-HOLE BEAN

Can you tell me something concerning the practice of installing a bean at the bottom of the tubing of a flowing well? What are the advantages of such a bean? How is it constructed? Is this kind of device something new or has it been used for some time?—G. G. E.

The idea of a bean at the bottom of the tubing of flowing wells cannot be called new. An appliance which was essentially a bottom-hole bean and patented by John D. Rockefeller was in use more than 40 years ago. Little use of this device was made before 1922, when it was placed in wells of the Santa Fe Springs area in California. Since that time different oil operators have experimented with bottom-hole beans, but few records of the results accomplished are available.

William A. Clark, petroleum engineer for The Texas Company, to whom this department is indebted for the facts given here in answer to your question, says that in theory bottom beans in flowing or gas-lift wells should produce certain advantageous results. With the exception of flow friction of the tubing and flow lines no back pressure is held on the rising column of fluid. Severe beaning thus is possible without danger of killing the well by an excessively heavy fluid column.

The whole energy of the gas expanding to atmospheric pressure is utilized to lift the fluid in the well. The same effect is gained when flowing a well through open tubing or casing. The bottom bean affords an efficient use of the expanding force of gas, utilizing less gas to raise a given quantity, and thus permitting lower gas-oil ratios. The flow restriction being at the point of entrance to the flow string, a more uniform mixture of oil and gas enters the tubing and a steadier back pressure is held on the well. The uniform mixture and high velocity gained while flowing through the bean, which is above the critical velocity required to suspend a spray condition of gas and oil, prevent slippage of gas, surging and heading, with resultant strain on the casing. The conditions gained allow positive control of production in gas-lift wells within limits fixed by the size of the bean and the volume of input gas, and they probably aid in preventing sanding up of a well and the coning action of water encroachment. The relation of the area of the orifice of a bottom bean to that of a surface bean for the same pressure drop may be calculated closely enough for practical purposes.

Bottom-hole beans now in use may be classified as follows:

Fixed class, changed only by pulling tubing; adjustable class, which includes those adjustable by rotating tubing, rods or moving lines on a yoke, and the replaceable class, which are changed by pulling and rerunning the bean on the sand line.

In the fixed class are beans of the following types: (1) A bell-shaped funnel screwed into the end of the tubing, the funnel throat having little or no smaller opening than the internal diameter of the tubing. (2) An iron or steel tube 4 to 8 inches long, screwed into the end of the tubing, having an opening of the desired diameter of the orifice. (3) A steel cap screwed on the tubing, having an opening of the desired diameter of the orifice. (4) A steel tube, the orifice of which is machined out on the principle of a Venturi flow tube.

In the adjustable class, where the bean size is changed by rotating the tubing or rods or by moving lines on a yoke, the bottom member of the bean assembly may be anchored by a spring cage or a tubing catcher.

In the replaceable class the bottom bean is changed or adjusted by removing and replacing the assembly on a sand line without pulling the tubing.

WHAT DRILLING PROGRAM?

We have a practically solid block of leases comprising around 9,000 acres and are considering letting a drilling contract for say one-third of this acreage. We are wondering just what would be the best way to select this acreage, whether it would be best to give it in a solid block, or in 40, 80 or 160-acre pieces, or to divide it according to farms, which run from 80 to over 200 acres. We expect to retain a royalty in anything produced.—J. B. M.

In making a drilling agreement on your block of land it is quite possible that the person taking the contract will have some fixed ideas as to what land he would want assigned to him. It is, of course, impossible to tell you what his requirements might be, but his demands are likely to govern in great measure what you can do.

In Oklahoma and Kansas it is usual practice to require checkerboard assignments to fulfill a drilling contract because in that way the chances of getting a good play in the event commercial production is found are increased.

It is suggested, however, that you obtain the services of a geologist to go over this land carefully and map it for you and make a geological report. An experienced geologist can give you sound advice upon leasing the land for drilling and protect your interest.

Without some detailed knowledge of the geology of the area under consideration it is a matter of chance and one guess is as good as another under such conditions. If the property lies over a good structure you should know of it in advance of drilling. It would help you in your negotiations with the person who takes the drilling contract and would place you in position to protect your best interest and select the best site for drilling the first test well.

Without such knowledge it is possible that a drilling site selected at random might prove a dry hole and condemn what later might prove to be a good piece of acreage. In a block of this size many variations in underground conditions can exist and it does not seem possible that you can get too much good advice from reputable geologists.

WHY WAS IT CALLED THAT?

VESPER GAS

"Vesper gas" was a name applied to naphtha in the early days of oil refining, when the practice of employing fanciful designations was more common than it is now. The name soon passed out of use. Dr. Henry Erni, in his book, on "Coal Oil and Petroleum," published in 1865, referred to use of the term:

"The heavier hydrocarbon oils are nonexplosive and safe, while the lighter and more volatile ones, such as naphtha, sometimes sold under various fictitious names, as 'liquid gas,' 'vesper gas,' etc., are as dangerous as the older burning fluids manufactured from strong alcohol and oil of turpentine, and which invariably exploded when their volatile vapors, mingled with the atmospheric air, came in contact with a light. They have cost hundreds of lives in our country."

THINK HE "POTTERS AROUND"

I have to take a good deal of criticism and "joshing" from the other men, who think I waste time "pottering around." This is because I have something of a bug on trying to keep tools in first-class shape, tightening bolts and screws where I find them loose, scraping grease off the derrick floor after a pulling job, and so on. They tell me that most of the time I spend that way is wasted. My belief is that it pays in dollars and cents, in more and better work done and in smaller danger of accidents. What do you think about it?—D. A. E.

There is only one answer to your question. Of course attention to details can be carried to a point where it becomes pottering, but it is assumed you use common sense. The subject is discussed so well by E. S. Durward, of the Shell Petroleum Corp., in a paper presented at a chapter meeting of the American Petroleum Institute in El Dorado, Ark., that part of it is quoted here:

"It is an undisputed fact that the life of any piece of equipment is dependent more upon the care given to it than on any other factor. The first care, therefore, is to select good substantial and suitable equipment made by manufacturers of good repute. It is the cheapest in the end.

"Having obtained the equipment, the next care is to use it properly—not abuse it. Cleanliness is the very first consideration and is indicative of a careful workman. Whenever you see tools and equipment kept neatly, tidily and as clean as circumstances and conditions will allow, you will always find that they give less trouble to operate, last longer, operating expenses are not more than they should be, and, last, but the most important of all, accidents causing loss of life or injury to workers are few and far between. The clean worker is not only a good worker but a safe and economical worker.

"Care No. 2 then is cleanliness in all things. Clean up tools and equipment, derrick floors, engine and belthouses after doing a job. Remember a greasy floor or tools left lying about may cost someone his life.

"The next call in order of importance is upkeep. All hand tools, after being cleaned and before being put away, should always be examined. If they are worn, then spare parts should be put in or repairs made otherwise. Wrenches with worn jaws may slip off a nut and cause a serious accident or they may prevent a bolt being tightened up properly. Worn elevators may result in dropping a string of rods or tubing or in the death of a workman. There is no excuse whatever for using dangerous tools or equipment. This is a point up to the workers who use the tool and not the field superintendents, district superintendents or general managers. These men cannot possibly in most cases see that all the tools on the lease are in good order. They have to depend on their men who use them to advise when repairs or replacements are due. Rigs and machinery which are not kept up shake themselves apart, get out of alignment, cause excessive wear and tear, heavy repair bills and unsatisfactory operation. A loose rig is responsible for much rod breakage because vibration and hammerage set up from loose equipment causes rods to become fatigued or crystallized as it is often called. A hammering gas engine connecting rod will soon end in a breakdown as the vibration it sets up loosens various bolts and fixtures. It is cheaper to shut down for half an hour and tighten up anything that has loosened up than to let it ride till a breakdown takes place; you have a big repair bill and the well is down for hours or even a day or two."

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 40)

F. H. Eckert & Son's No. 10 Sandemer, 400 ft. E of No. 9. Location.
F. H. Eckert & Son's No. 1 Louis Brehm, W offset to No. 3 John J. Brehm ..... Location.
Gatlin Oil Co.'s No. 10 Beck ..... T.D. 700 ft.; comp. 8 bbls.
W. R. Swearingen's No. 8 Halbadier in Perez Sur. ..... Moving in.

SALT FLATS POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tract, A. Floyd Sur. ..... T.D. 2,704 ft.; standing.
John Storey's No. 1 Dickerson, 150 ft. to N of center of S line of tract, John R. Rains Sur. ..... Rigging up.

COLE POOL—DUVAL COUNTY

Cole Petroleum Co.'s No. 75 Benavides, 365 ft. from NE line, 150 ft. from NW line, Blk. 8, Sec. 18, Mariana Arispe grant ..... T.D. 2,650 ft.; drlg.

GOVERNMENT WELLS—DUVAL COUNTY

Duval Oil Corp.'s No. 8 Bishop Cattle Co., 660 ft. E of No. 1 in Sur. No. 135 ..... T.D. 2,330 ft.; coring.
Humble Oil & Ref. Co.'s No. 3 Paul White, 1,650 ft. from S and W lines of Sur. 58 ..... Spudded in.

S.R.C. POOL—DUVAL COUNTY

S.R.C. Oil Co. and Magnolia Pet. Co.'s No. 7 Duval Land Co. ..... Spudded in.

DARST CREEK POOL—GUADALUPE COUNTY

Humble Oil & Ref. Co.'s No. 3-C Denman, 600 ft. NE of No. 2-C Denman, 700 ft. from W line of lease .... Spudded in.
Humble Oil & Ref. Co.'s No. 3-C Denman, 600 ft. NE of No. 2-C Denman and 700 ft. from W line of lease.. Location.

SLICK POOL—DEWITT-GOLIAD COUNTIES

Simms et al's No. 1 J. C. Tom ..... T.D. 3,855 ft.; drlg.

RANDADO POOL—JIM HOGG COUNTY

O. W. Killam's No. 1 Hinnant, 150 ft. N of NE cor. of Sur. No. 84 in Sur. No. 614 ..... T.D. 1,300 ft.; drlg.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim ..... T.D. 4,850 ft.; standing.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin ..... T.D. 3,100 ft.; standing.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell ..... T.D. 5,070 ft.; standing.
Gulf Coast Oil Co.'s No. 2 Sedwick, east offset to company's No. 1 Harrell ..... T.D. 4,556 ft.; comp. 375 bbls. oil daily.
Gulf Coast Oil Co.'s No. 3 Sedwick, east offset to Houston Oil Co.'s No. 1-B Maggie Harrell ..... Making location.
Houston Oil Co.'s No. 1 McGregor, 150 ft. from E line, 330 ft. from S line of 100-ac. tract in Sur. 311 ..... T.D. 2,640 ft.; drlg.
Neal, Milton & Kepley's No. 2 Roark ..... Making location.
Saxet Oil Co.'s No. 3 Donigan, north offset to Zoch's No. 1 Baldwin ..... Location.
Saxet Oil Co.'s No. 5 Weil, 3,041 ft. to N line, 333 ft. to W line ..... T.D. 2,500 ft.
Saxet Oil Co.'s No. 6 Dunn, 600 ft. S of No. 5 Dunn, 4 miles W from Corpus Christi ..... T.D. 5,082 ft.; coring.

ARANSAS POOL—SAN PATRICIO COUNTY

Atlantic Oil Prod. Co., to deepen to 6,000 ft. the Welder Oil Corp.'s No. 3 Welder ..... T.D. 3,689 ft.; to deepen.

LOS OLMOS POOL—STARR COUNTY

H. H. Davis' No. 2 fee, 450 ft. to S line, 150 ft. to E line of W 10-ac. in SE SW of Sur. 6, Porcion 76.. T.D. 485 ft.; comp. 25 bbls.
Hooks & Weaver's No. 3 Kelsey-Bass, Sec. 6, Porcion 76.. T.D. 460 ft.; comp. 10 bbls.
Hooks & Weaver's No. 4 Kelsey-Bass, 600 ft. N of their No. 1 Kelsey-Bass ..... T.D. 190 ft.; drlg.
J. A. Tarver's No. 1 A. K. Bass, 150 ft. from N and E lines of lease ..... T.D. 300 ft.; drlg.
Jones & Watt's No. 1 Kelsey-Bass, 200 ft. to N and W lines of Sur. 7, Porcions 75, 76 and 77 ..... T.D. 312 ft.; drlg.
M. A. Landrum's No. 1 A. K. Bass, Sec. 6, 150 ft. to S and E lines of lease ..... Location.
Los Olmos Oil & Gas Co.'s No. 9 Kelsey-Bass, 450 ft. from W line, 150 ft. from N line of SE of SW Sec. 6, Subd. of Porcions 75, 76 and 77, Jurisdiction of Camargo ..... T.D. 435 ft.; drlg.
Los Olmos Oil & Gas Co.'s No. 9 Kelsey-Bass, 450 ft. from W line, 150 ft. from N line of SE SW of Sur. No. 6 ..... T.D. 502 ft.; set csg.
Los Olmos Oil & Gas Co.'s No. 10 Kelsey-Bass ..... T.D. 340 ft.; set csg.
Quien Sabe Oil & Gas Co.'s No. 2 Kusch, 150 ft. from N line, 525 ft. from E line of Tract 11 in Porcion 75.. T.D. 100 ft.; drlg.
Rio Oil & Gas Co.'s No. 1 Kelsey-Bass (formerly carried as Los Olmos Oil & Ref. Co.'s No. 1 Kelsey-Bass) ..... T.D. 910 ft.; standing.
Rio Oil & Gas Co.'s No. 3 Kelsey-Bass, No. 6 Subd., Porcions 75, 76, 77 ..... T.D. 300 ft.; drlg.
San Marcos Oil & Gas Co.'s No. 6 Ivey, 150 ft. from E and N lines of Share 8, Subd. of Porcions 75, 76 and 77, Jurisdiction of Camargo ..... T.D. 287 ft.; comp. to 250,000 ft. gas.
San Marcos Oil & Gas Co.'s No. 7 Ivey, 450 ft. S of No. 6 Ivey ..... T.D. 200 ft.; set csg.
E. W. Sullivan's No. 1 Kelsey-Bass, 60 ft. from N and W lines of SE SE SE of Sur. 7 ..... T.D. 480 ft.; drlg.

WEST COLE POOL—WEBB COUNTY

French Oil Corp.'s No. 5 Benavides, 1,602 ft. from N line, 150 ft. from W line of Sur. 659 ..... T.D. 2,335 ft.; oil standing in hole.

ESCOBAS POOL—ZAPATA COUNTY

E. R. Black & Paul S. Williams' No. 1 Comitas grant, 150 ft. from S and E lines of Blk. 100 ..... Location.
F. M. Blair & Son's No. 1 Montemayor, 450 ft. to N, 150 ft. to E line of Blk. No. 1, Sur. No. 63 ..... Rigging.
Brogan & Belcher's No. 1, M. Garza, 150 ft. to NE and SE lines, Blk. 62, C. A. Douglas Subd. of Zorro ranch, Comitas grant ..... T.D. 1,680 ft.; cored sand.
Daniels & Hill's No. 2 Montemayor, 112 ft. from N line, 774 ft. from E line of Blk. 7, Sur. 64 ..... T.D. 1,324 ft.; to deepen.
F. H. Etheridge's No. 5 Bustamente, 1,540 ft. from NE line, 150 ft. from NW line of Sun 80-ac. lease, Share 35, Fansler's Partition, Comitas grant ..... Abnd. location.
K. & M. Oil Co.'s No. 1 Cuellar, 150 ft. from N and W lines of Blk. 7, Sur. 13 ..... T.D. 1,472 ft.; tested big gas well.
O. W. Killam's No. 4 Medina, 500 ft. to NE, 150 ft. to NW lines of Share 34, Fansler Subd. of Comitas grant ..... Abnd. location.
O. W. Killam's No. 5 Medina, 850 ft. from NE, 150 ft. from NW lines of Share 34, Fansler's Subd. of Comitas grant ..... Abnd. location.
D. M. Shaffer's No. 1 M. Garza, 150 ft. from NE and NW lines of Blk. 56, C. A. Douglas Subd. of Zorro ranch ..... Rigging up.
S.R.C. Oil Co.'s No. 6-D Montemayor, 150 ft. from N and W lines of Blk. 10, Sur. 64 ..... T.D. 1,482 ft.; plugged.
S.R.C. Oil Co.'s No. 8-D Montemayor, 150 ft. from S and E lines of Blk. 8, Sur. 64 ..... 1,430 ft.; coring.
Trevino Oil Corp.'s No. 1 M. Garza Estate, 150 ft. from NE line, 250 ft. from SE lines of Blk. 36, Douglas Subd., Comitas grant ..... Rigging up.
Trevino Oil Corp.'s No. 16-A Trevino, 150 ft. from S and E lines of Blk. 14, Sur. 412 ..... Location.
Winch & Billings' No. 9 Bustamente, 1,218 ft. from NE line, 150 ft. from SE line of 31-ac. Pal-Mar tract in Share 35, Fansler's Subd., Comitas grant ..... T.D. 1,474 ft.; set csg; W.O.C., number changed.
Winch & Billings' No. 10 Jose Benavides, 500 ft. from NE and 170 ft. from SE line of 31-ac. Pal-Mar tract, Share 35, Fansler Partition of Comitas grant... Location; (number changed).

CHARCO-REDONDO POOL—ZAPATA COUNTY

Bob & Richey's No. 28 Martinez, 990 ft. from SW line, 615 ft. from SE line, Blk. 24, Duke Subd., Charco Redondo grant ..... Location.
Bob & Richey's No. 29 Martinez, 810 ft. from SW line, 360 ft. from SE line of Blk. 24, W. R. Duke Subd., Charco Rendondo grant ..... Location.

MARTINEZ POOL—ZAPATA COUNTY

F. H. Etheridge's No. 3 Winch & Henne, 160 ft. from W line, 200 ft. from S line of Blk. 10, Sur. 286..... Spudded in.
K. & M. Oil Co.'s No. 1 Trevino, 150 ft. from N and W lines of Blk. 7, Sur. 13 ..... Moving in.

CENTRAL WEST FIELDS

(Continued from Page 50)

Holden Clay Products Co. property, Lot 9, is reported a dry hole in the Niagara lime, and Clinton lime at a total depth of 5,015 feet.

Stark County

In Stark County, Brendall and others struck a fair gas well on the William Zuber farm, Section 24, Jackson Township, and is drilling a little deeper in hope of increasing the gas flow. Same parties have a fair gas well in No. 3 on the William Haymaker farm, Section 23, same township, in the Clinton lime, from 4,396 to 4,417 feet, and has a much better gas volume in their No. 1 R. and S. Danner farm, Section 11, same township, also in the Clinton lime from 4,225-40 feet. Sisler and others have a nice gas well just brought in, No. 2 on the Eva M. Sisler farm, Section 21, same township, in the Clinton from 4,264 to 4,301 feet. East Ohio Gas Co. is drilling No. 2 Elza Hall, Section 12, Jackson Township, and has a rig in for No. 2 on the Leo Frank farm, Section 14. Wiser Oil Co. is drilling No. 2 on the Lake-O-Springs farm, Section 14. East Ohio Gas Co. has a rig in for No. 4 on the T. K. Harris farm, Section 25, same township, and has also made a location for No. 5, same farm.

In Fairfield County, Pleasants Township, the City Natural Gas Works is drilling No. 3 Charles W. Moyer farm, Section 13, also drilling No. 3 William and Hattie Brueker farm, Section 2, Berne Township, same county.

In Guernsey County, W. C. Urban and others have a rather light gas well in No. 3 on the Guernsey Valley Fair Grounds, Lot 22, Jackson Township, in the Berea sand from 1,085-91 feet. Jewell and others have a rig on the Charles H. Scott farm, Section 1, Cambridge Township, same county.

In Stark County, the East Ohio Gas Co.'s No. 4 on the T. K. Harris farm, Section 34, Jackson Township, is a very light gas well, there being two T. K. Harris farms, the other being in Section 25.

INDIANA

The best completion in the Indiana fields was made by P. C. Andrews in No. 10 well, 200 feet from the north line and 525 feet from the west line of the E. Loveless farm, NE Section 23, Logan Township, Pike County, and in the Oatsville Pool, which produced an initial of 50 bbls. after given a 100-quart shot from 1,299 to 1,351 feet.

United Oil Corp. and others found only a showing of crude on the B. J. Gields farm, NE Section 10, Patoka Township, Gibson County, and it has been abandoned.

In Sullivan County, Curry Township, Pierson and others found only a fair gas volume in the northwest corner of the W. Z. Payne farm, NW Section 20, at a depth of 258 feet. Fred Bays and others second test in the southeast corner of the A. Martz farm, NE Section 29, same township, was at a depth of 557 feet.

C. W. Reichard is drilling on the Fred A. Cleveland farm, Section 30, Orangeville Township, Orange County.

ILLINOIS

Only two completions were reported from the Illinois fields as many of the tests have been shut down. Only one producer was announced, W. C. McBride, Inc.'s No. 1 well, 2,000 feet from the south line and 600 feet from the west line of the W. I. Wisner farm, NE Section 4, Montgomery Township, Crawford County, which produced an initial of 10 bbls. at a total depth of 951 feet. The other completion was Collins and others' test on the Waelte heirs farm, NE Section 33, Stookey Township, St. Clair County, dry from 1,208 to 1,224 feet. Only one other well is reported under way in St. Clair County, Johnson Oil Co.'s No. 1 on the E. H. Smiley, Section 18, O'Fallen district, which is idle at this time.

In Bond County, the Bond County Gas Co. is reported drilling on the J. C. Merry farm, Section 20, Lagrange Township.

Richard and others are drilling on the H. Klair farm, in Wade Township, Jasper County. Last report from the deep test being made by the Phillips Petroleum Co. on the W. R. Moss farm, Section 24, Elk Prairie Township, Jefferson County, was that the hole was down to 2,763 feet.

KENTUCKY

Four completions were reported in Kentucky, scattered over four counties. The only oil producer was Chester Oil Co.'s No. 1 John McCarty farm, in the Friendship Pool, of Ohio County, reported at 5 bbls. initial.

Hancock County reports a dry hole drilled by the Sand Petroleum, Inc., in No. 2 on the W. F. Burke farm, in the Pellville Field.

The Ohio Oil Co. reports a dry hole on the Elain Shelton farm, near the town of Weir, in Muhlenberg County, at a total depth of 1,570 feet.

An unusually good gas well was found by Archie McGuire and others on an unknown tract along State Highway No. 90 in the Burksville area of Cumberland County, being reported for 2,000,000 feet from the Sunnybrook formation.

CALIFORNIA FIELDS

(Continued from Page 46)

failed to develop oil production in the Tejon formation at 6,912 feet, was plugged back to 4,375 feet and the 6⅝-inch casing perforated between 4,200 and 4,350 feet. Several tests showed No. 3 More flowing at the rate of 32,000,000 feet per day previous to being shut in. The pressure on this well approximates 1,700 pounds.

The Hancock Oil Co. has acquired the Archambeault property in the Los Alamos area of Santa Barbara County and an early test will be made. This property, extending over several sections, was recently quitclaimed by the Pacific Western Oil Co. The Pacific Northern Gas & Oil Co. has taken over the well and holdings of the George F. Getty Co., Inc., in the Guinda, or Nigger Heaven district of Yolo County. The Getty interests drilled their No. 1 Quinda to a depth of approximately 2,007 feet but work on this well, located in Section 23-12-3, was suspended at the end of October, 1930. The Getty Oil Co. has retained 80 acres in Section 15-12-3 for protective purposes only. The Pacific Northern Gas & Oil Co. has taken over this well and will carry it down in an effort to develop commercial gas production. The Mohawk Oil Co. has abandoned No. 1 Pavey, a wildcat in Section 29-3-14, about 2 miles southwest of the Lawndale Field, as a duster at 6,262 feet. This well was located as a result of extensive geophysic exploration. Albert Stevenson has staken location for at new well to be drilled in the Watson district where the Ranger Petroleum Co. recently finished a small pumping well.

J. E. TOOKER DIES

James E. Tooker, cashier for the Midwest Refining Co. at Denver since 1915, died at his home in that city February 21, following a two years' illness. He was born in Yarmouth, Nova Scotia, July 27, 1877.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

TREATING LUBRICATING OIL

What is the best method of ascertaining whether lubricating oil is neutral, acid, or alkaline? How may the percentage be obtained? How much acid is ordinarily left in bright stock before filtering? Is it practical when contact filtering to do all of the acid neutralizing with clay?—E. G. G.

When it is desired to determine the reaction of a lubricating stock on a quantitative basis, the actual condition is first found by means of an indicator. A small quantity of the oil is agitated with neutral distilled water, a part of the water is withdrawn and tested with a drop or two of phenolphthalein and methyl orange solutions, or any other suitable indicator solution. If an acid reaction is found, a small quantity of the oil is weighed and then treated with the distilled water. The oil is washed free from water, the water solution diluted to some convenient volume and aliquots titrated against a standard alkaline solution.

Acidity may be expressed in either terms of the neutralizing alkali or the actual equivalent percentage of the acid. Since potassium, sodium and ammonium hydroxides are commonly used as standard solutions the results are frequently shown as milligrams of the active alkali per gram of oil; for example, the neutralization number may be the mgm. KOH per gram of oil. Such data are easily converted by the chemist to weight or percentage of any acid.

Should the preliminary test indicate that the oil is alkaline it will be necessary to follow the same method but titrate with a standardized acid solution.

When treating any lubricating stock the quantity of acid left in the oil after treating and before filtering, will depend largely upon the settling time and condition of the oil. Long settling is not advisable because of the tendency to form secondary products which result in the loss of color. After settling, and removal of the acid sludge, the oil may be transferred to the contacting tank. Here some refiners give a light alkaline wash, this may be with ammonia, caustic soda, or lime, and settle before adding the filter earth. The percentage of acid remaining in an oil at the contact tank may range from a trace, something on the order of a part of 1 per cent, for the light oils and possibly over 5 per cent for some heavy oils.

With an operation such that only small quantities of acid are present, it is possible with a suitable earth, to accomplish complete neutralization during the contacting and filtering.

MAKING GASOLINE FROM COAL

I note from a recent news item that in Germany there has been perfected a chemical formula for making gasoline from coal. Is there any authentic foundation for this statement? If there is, what in your opinion will be the results to lease and royalty owners of oil properties in the United States?—O. K.

Efforts have been made for many years to convert coal into a liquid fuel, the recent developments originating with the work of Doctor Bergius, Hanover, Germany, about 1913, which had for its object the manufacture of a motor fuel from coal. His method, a form of cracking, involved the heating of a mixture of oil and coal at about 850° F., in an atmosphere of hydrogen while subjected to a pressure of about 2,000 pounds to the square inch. In the presence of a catalyst it has been reported that conversions up to 90 per cent of the coal were obtained. This synthesis has been perfected in Germany by the I. G. Farbenindustrie Actiengesellschaft and in the United States by the Standard Oil Co. of New Jersey.

The process seems well adapted to handling heavy fuel oils, tars and pitches. A recent report of the Fuel Research Board, England, mentions experiments with low-temperature tar using ammonium molybdate-charcoal-sulphur catalysts. In this 20 gallons of tar were changed to 20 gallons of oil containing 14 gallons of neutral oil, boiling below 230° C. (446° F.), two-thirds of which boil below 170° C. (338° F.), and there remains 6 gallons of pitch-free oil, which can be used as a Diesel fuel. The volume of hydrogen absorbed in accomplishing this conversion was 1,250 cubic feet.

The hydrogenation of petroleum residues, based on the German patents, as controlled in the United States by the Standard Oil Co., consists in pumping the charging stock, together with hydrogen compressed to between 3,000 and 4,000 pounds per square inch, through heat exchangers and a heating coil into reaction vessels containing a highly active sulphur resistant catalyst. The oil and hydrogen flow through these reaction chambers where hydrogenation occurs, then back through the heat exchangers and coolers into vessels that separate the gas from the liquid product. The product is then distilled and finished by the regular refinery methods.

The hydrogenation process may give a yield of from 100 to 115 per cent gasoline from petroleum, the excess being due to the introduction of hydrogen. The modern cracking unit will in the one unit convert petroleum of average grade 70 per cent to gasoline, even better yields may be had but this is a conservative estimate, so there may be an apparent difference of from 30 to 45 per cent in favor of hydrogenation. However, installation and operating expenses are so much higher that there seems little chance for the hydrogenation process to become a feature in the petroleum industry so long as crude oil is obtainable at anything like the present prices. The actual replacement of petroleum by coal as a source of motor fuel and lubricants is certainly remote.

TRACTOR FUEL OIL SPECIFICATIONS

What is the standard specification for tractor fuel oil?—J. P. L.

Tractor fuel oil is usually an oil of the kerosene range as distilled from the crude oil. There are no standard specifications covering this product, but the general properties of kerosene may be used as a guide. The market quotations recognize several grades of tractor fuel. These are similar to the raw kerosene as made from the crude oil of the area. The gravity ranges from 38° to 43° A.P.I., the higher gravities being from the oil produced from Pennsylvania crude. The color of tractor fuel oil may be quite deep, a dark straw, or with but little tinge of color, about prime white (+16 Saybolt). These oils usually flash between 150° and 175° F., and distill with an endpoint under 575° F. The total sulphur should be not over 0.2 per cent.

COOLING OF WATER IN TOWERS

What are the fundamentals to be considered when arriving at the quantity of water handled, cooling surface and air required for cooling water to be reused for condensers, etc.?—M. F.

The cooling of water for reuse is accomplished by means of open ponds, spray ponds, chimney towers, fan towers and open atmospheric towers. The towers give the best results. Chimney towers are so called because of the tall chimney erected above the cooling surface, the draft is produced by the air being warmed through contact with the falling hot water. In the fan tower the air is forced through the particles of water by fans or blowers. Water is cooled in the atmospheric towers by the wind flowing cross-current.

The essential factors concerning cooling tower design and operation include dry bulb temperature, dew point, vapor pressure, relative humidity and wet bulb temperature. These are related to surface exposure and draft or wind.

The literature mentions numerous articles in which various forms of towers are described and the principles involved in the problem are explained. The material following is based on Theory of Cooling Tower Operation, by D. K. Dean, Power, 62, 754, 1925.

Saturated water vapor at 70° F. has a density of 0.001148 pound per cubic foot. The atmosphere at 70° with 60 per cent relative humidity would contain 60 per cent of 0.001148, or 0.000689 pound of water vapor per cubic foot. The temperature of saturation corresponding to 0.44 inch of mercury is 55.5°. This is the dew point and 0.44 inch of mercury is the atmospheric vapor pressure. When a wet bulb thermometer is whirled with the barometer at 30 inches, it will register 61° F. Since the vapor pressure corresponding to 61° saturation temperature is 0.541 inch of mercury absolute, this indicates that the heat given to the bulb by conduction from the air 70° — 61° is equivalent to the heat dissipated by vaporization due to the difference between the vapor pressure of the water in the bulb and the atmospheric vapor pressure 0.541-0.44 inch mercury.

The rate of heat transfer between air and water by conduction per degree per unit area bears to the rate of heat transfer per inch of mercury a constant ratio of 0.0116. For a range of temperature from 85°-°105° F. assume 2,000 gallons of water per minute cooled from 105° to 85°, with 75° dry bulb, 70 per cent relative humidity and further assuming 1,500 B.t.u. transfer with 1 cubic foot of space occupied by the filling per inch of mercury as mean potential difference per hour, then

$$2{,}000 \times 8.33 \times 60 \times (108-85) = 20{,}000{,}000 \text{ B.t.u. per hour.}$$

The mean cooling potential is 0.986 inch of mercury. Required space by filling is:

$$\frac{20{,}000{,}000}{0.986 \times 1{,}500} = 13{,}560 \text{ cubic feet.}$$

The quantity of air required may be obtained from:

B.t.u/lb. air at 85° saturated above 32°	41.5
B.t.u./lb. air at 75°, with 70% relative humidity above 32°	24.5
B.t.u. absorbed per lb. air	17.0

$$\frac{20{,}000{,}000}{17} = 1{,}176{,}470 \text{ pounds air}$$

per hour, or 19,608 per minute.

Additional references are:

Refrigeration World, 63, 7, 1928; W. B. Moses, Atmospheric Cooling Equipment.

Refinery Cooling Towers Design, by H. R. Lamberth, World Petroleum, August, 1930, page 341.

Numerous tables and data on the subject are to be found in Kent's M. E. Handbook, page 1,192.

CANCER DEVELOPED FROM LUBRICATING OILS

Do you have any references to the proposition that lubricating oils may cause boils and possibly cancer?—T. P. C.

It is widely recognized that workmen handling lubricating oils, wax distillate and wax are frequently subject to attacks of skin inflammation and boils. Investigations have shown that when reasonable care was taken to keep the skin clean such infections could be avoided. Modern refineries provide ample bathing facilities and where advantage is taken of these conveniences the paraffinic eczema and other skin irritations have been largely eliminated.

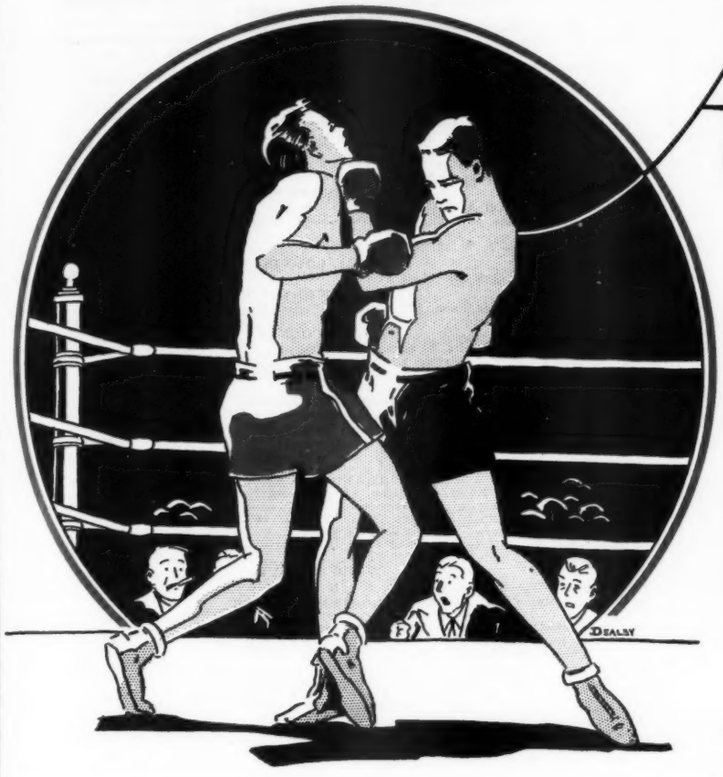
Synthesis of a chemical which produces cancer in animals, regarded as experts as an important step in the search of science for the cause of the disease, is reported in the January, 1932, issue of The American Journal of Cancer, by Burrows, Hieger and Kennaway, of the Research Institute of the Cancer Hospital, London, England.

The work started after 550 cases of cancer had been reported in England among workers in industries using heavy lubricating oils. The scientists traced back the source of the oil, and then proceeded to test out on mice and rats which of the oils was the most effective in producing cancer. Two types of cancer, carcinoma and sarcoma, have been produced and transmitted.

Each cancer-producing oil gave off a particular fluorescence, this being due to the presence in the oil of a certain group of chemical compounds. It was, therefore, assumed that it was the fluorescing element in the oil that had to do with the cancer.

The investigators then proceeded to produce synthetically a chemical substance that would give off the same flourescence. They produced a series of fluorescent compounds, finally obtaining one which they found the most effective in producing the disease experimentally.

Since all the cancer-producing oils gave off the same fluorescence it was concluded that the disease is caused by the same chemical substance present in the organic compounds, though just what the substance is still remains to be determined.



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WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

W. A. Klecka's No. 1 W. W. Thornton, 500 ft. from N line, 1,058 ft. from E line of tract in R. Roberts Sur. ..... Location.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur. ..... T.D. 365 ft.; S.D.
Jas. Scroggins' No. 2 Warrick, Ingram Sur. ..... T.D. 1,432 ft.; S.D.

BEXAR COUNTY

Amsden-Ingersoll-Miller's No. 1 Strumberg, 450 ft. to W line, 1,020 ft. to N line of tract, 12 miles SW of San Antonio ..... T.D. 597 ft.; drlg.
J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line of C. Logan Sur. ..... T.D. 1,773 ft.; S.D.
Eckert et al's No. 1 Edwards, 150 ft. to N. and W lines of farm in Martinez Sur. ..... T.D. 1,490 ft.; standing.
Callahan Final Oil Co.'s No. 1 B. H. Buck, 900 ft. to E line, 3,200 ft. to S line of farm, in J. M. McGamley Sur. ..... T.D. 650 ft.; drlg.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur. ..... T.D. 2,328 ft.; bailing sulphur wtr.
Jones & Volts' No. 6 Bonkowsky ..... T.D. 650 ft.; drlg.
O. K. Oil Co.'s No. 1 Strum, 150 ft. S of N line, 150 ft. W of E line, John Grant Sur. ..... T.D. 150 ft.; drlg.
O. K. Oil Co.'s No. 2 Strum, 150 ft. from S line, 1,051 ft. W of E line, Juan Mantes Sur. ..... Drlg.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio ..... T.D. 1,150 ft.; S.D.
W. R. Swearingen et al's No. 7 Halberdier, 150 ft. W of E line, 540 ft. S of N line, J. M. Perez Sur. ..... T.D. 800 ft.; comp. 10 bbls.
S. W. Blount's No. 1 S. A. Land Co., I. Perez Sur., 1,000 ft. to N line, 450 ft. to W line of tract ..... T.D. 520 ft.; S.D.

CALDWELL COUNTY

Cole & Moseley's No. 1 Pierce, 150 ft. to NW and SW lines of tract, Solomon Seal Sur. ..... T.D. 825 ft.; S.D. for repairs.
Kistler, Stivers & Hendrick's No. 1 D. Carter, 400 ft. from NW line of Sur., 300 ft. NE of Creek in I. Allen Sur. ..... Rigging up.
Meyer's No. 1 G. C. and W. Walker, Solomon Seal Sur. ..... T.D. 160 ft.; drlg.
M. O. Rayor's No. 3 N. L. Dunlop, 350 ft. to NW line, 150 ft. to NE line of farm, Solomon Seal Sur. ..... T.D. 2,503 ft.; plugged back to Buda.

DUVAL COUNTY

Frank Gravis et al's No. 2 Schaliert, 425 ft. to E line, 150 ft. to S line of Blk. 10, Cain & Smith Subd. "A", Sur. No. 255 ..... T.D. 1,430 ft.; no report.
O. W. Killam's No. 1 Sutherland, Sur. No. 7, 3,200 ft. to E line, 150 ft. to N line ..... T.D. 3,028 ft.; abnd.
O. W. Killam's No. 1 Peters, 150 ft. from E line, 450 ft. from N line of SE of Sur. No. 1 ..... T.D. 1,665 ft.; drlg.
R. A. Thompson's No. 1 Parr, 2,640 ft. to W line, 12,160 ft. to S line of San Andres grant ..... T.D. 3,500 ft.; drlg.
Vacuum Oil Co.'s No. 1 Duval Land Co., 260 ft. from S and E lines of Sur. 96 ..... T.D. 2,450 ft.; abnd.

GUADALUPE COUNTY

Barnhill et al's No. 1 H. L. Hoffman, 450 ft. to N and W lines of farm, in John G. King Sur. ..... T.D. 850 ft.; S.D.

GOLIAD COUNTY

Hoffman & Gooch's No. 1 Fromme, 600 ft. from N and 1,200 ft. from W line of Peter B. Dexter Sur. ..... T.D. 2,279 ft.; rig up to deepen.
Plymouth Oil Co.'s No. 1 Parks, 5 miles NE Goliad ..... T.D. 4,625 ft.; waiting on orders.
Neal et al's No. 1 J. M. Pettus, 10,700 ft. to S line, 2,500 ft. to E line of Pedro Trevino Sur. ..... T.D. 4,565 ft.; standing.

GONALES COUNTY

Crowder Oil Co.'s No. 1 Preston, 1,000 ft. from W line, 2,000 ft. from N line of W. W. Pace Sur. ..... Spudded in and S.D.
Johnson & Mattock's No. 1 J. James, 12 miles NE of Gonzales city, 900 varas from E line, 300 ft. from S line of tract in M. A. Williams Sur. ..... T.D. 200 ft.; drlg.
Nassamer, Gordon & Waldrop's No. 1 B. Botts, 2,500 ft. from E line, 650 ft. from S line in Sec. 6, Blk. 56, Gonzales Sur. ..... Location.

HIDALGO COUNTY

Barrett-Kanellos' No. 1 J. B. Brock, 7 miles W and N from Mission (on Monte Cristo road) ..... T.D. 2,715 ft.; drlg.
LaJoya Oil & Gas Co.'s No. 1 W. L. Hart, 6 miles W from Mission, north of San Fordyce ..... T.D. 5,100 ft.; drlg.
Dayle L. Smith's No. 1, 18 miles W from Edinburg ..... T.D. 4,026 ft.; standing, showing gas.
San Roman Oil Co.'s No. 1 J. T. Lomax, 7,500 ft. from S and E lines of San Roman Sur. ..... T.D. 486 ft.; set csg., W.O.C.
Dayle L. Smith's No. 3 Daskam, SW part of county ..... T.D. 755 ft.; drlg.

JIM HOGG COUNTY

L. W. Connor's No. 1 Holbien, 150 ft. from N and E lines of Blk. 7, Sur. 7, Holbien Subd. of Las Animas grant ..... T.D. 1,115 ft.; drlg.
T. P. Morgan's No. 1 fee, 2,223 ft. to N line, 1,640 ft. to E line of Share 19, Palo Blanco grant ..... T.D. 1,500 ft.; S.D. for water.

JIM WELLS COUNTY

Gulf Prod. Co.'s No. 5 Shaeffer, SE cor. of Sur. No. 89 ..... T.D. 3,044 ft.; plugged back, tested big gas well.
Vacuum Oil Co.'s No. 1 Seeligson, 4,500 ft. to W line, 75,000 ft. to S line of Los Jatoncillos Sur. ..... T.D. 3,810 ft.; drlg.

KARNES COUNTY

A. E. Edmiston's No. 1 O. L. Cochran, 150 ft. from S line, 500 ft. from E line of farm in D. B. McConnell Sur. ..... T.D. 1,800 ft.; standing.

KENDALL COUNTY

Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T.D. 2,708 ft.; standing.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county ..... T.D. 50 ft.; S.D.

KERR COUNTY

George Ball's No. 1 F. A. Karger, 3 miles north of Kerrville ..... Rig on ground.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 ..... T.D. 1,312 ft.; standing.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 ..... T.D. 5,871 ft.; drlg.
Verde Oil & Gas Co.'s No. 1 J. D. Witt, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 1,923, Hamilton Sur., 4 miles S from Center Point. T.D. 200 ft. Carried to this depth and abandoned as Herber Oil Co.'s No. 1 J. D. Witt ..... T.D. 200 ft.; rigging up to deepen.

LIVE OAK COUNTY

Coastal Oil Finding Co.'s No. 1 Handley, 1,200 ft. from SE line, 400 ft. from SW line of tract in C. S. Cobb Sur. ..... Spudded in.
J. A. Harper's No. 1 fee, 2,130 ft. to N line, 510 ft. to E line of farm, J. Pointevant Sur. No. 37 ..... Spudded in and standing.
Henderson Coquat's No. 1 Hewitt, 250 ft. from N and E lines of SW of Sec. 5, Thomas Adams Sur. ..... T.D. 1,785 ft.; S.D.
Henderson Coquat's No. 2 Sanger, 1,280 ft. NW of No. 1 Sanger ..... Rigging up.

LEE COUNTY

Henderson & Holden's No. 1 Dismuke, 600 ft. to E line, 150 ft. to N line of farm, J. Maxmillan Sur. ..... Rigging up.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T.D. 3,890 ft.; S.D.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. ..... T.D. 2,300 ft.; S.D.
Chadwick et al's No. 1 Hickey, 1,000 ft. to NW line, 300 ft. to NE line of farm in Varreiman Sur. ..... T.D. 20 ft.; spudded in.
Washington-Lee Oil Co.'s No. 1 L. Hicket, 1,100 ft. from N line, 200 ft. from E line of tract in J. D. Varreiman Sur. ..... Location.

McMULLEN COUNTY

V. G. Shimmel's No. 2 Hale, 300 ft. S of No. 1 Hale ..... Rigging up.
Jacob, Buzzini & Pickett's No. 1 Brewer, 750 ft. NE of Pickett's No. 1 Nelson ..... T.D. 1,309 ft.; abnd.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera, School Land ..... T.D. 2,284 ft.; standing

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 ..... T.D. 922 ft.; twisted off drill stem, fishing.
C. J. Webster Oil & Gas Co.'s No. 1 Adams, 2,450 ft. to N line, 160 ft. to E line of Jos. Hillemeyer's No. 25. T.D. 2,850 ft.; drlg.

MILAM COUNTY

H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tract in B. Wickson Sur. ..... T.D. 3,000 ft.; S.D.
Red Bank Oil Co.'s No. 2-A J. A. Foster, 5,243 ft. to SW line, 150 ft. to NW line of farm ..... T.D. 5,055 ft.; drlg.
Frank A. Yeager's No. 1 Hose, 750 ft. from E line, 150 ft. from S line of lease in E. Allen Sur. ..... T.D. 1,376 ft.; set csg.

NUECES COUNTY

Camp and Stanolind Oil & Gas Co.'s No. 1 King, 600 ft. to N and W lines of Sec. 23, Richard King farm lots subd. ..... Rigging up.
C. E. McCarthy's No. 1, W of Corpus Christi ..... Making location.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW, Sec. 175 ..... T.D. 2,530 ft.; resuming drilling.

SAN PATRICIO COUNTY

John F. Camp's No. 1 Jackson, SW cor. of SW Sec. 30, 3 miles N from Edroy ..... T.D. 540 ft.; set surface csg.

STARR COUNTY

Davenport et al's No. 1 Wells, 30 miles W of Mission ..... T.D. 1,093 ft.; casing stuck.
R. E. Johnson's No. 1 Goodrich, 1,214 ft. from N line, 1,065 ft. from W line of tract, 1½ miles N of Rio Grande City ..... T.D. 1,200 ft.; drlg.
Strauch Oil Corp.'s No. 1 M. E. Salinas, 155 ft. from N and W lines of lease in Porcion 80, Share 38 ..... T.D. 860 ft.; drlg.
R. B. Suttle's No. 1 Guerra, 2,000 ft. to N line, 270 ft. to W line of Porcion 110 ..... T.D. 810 ft.; no report.
Jess Williams' No. 1 Welsh, 1,120 ft. to W line, 1,500 ft. to N line of tract in Pedernal grant ..... T.D. 490 ft.; drlg.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. ..... T.D. 1,180 ft.; S.D.
Fuchs et al's No. 1 Shiffler, 1,000 ft. to N line, 160 ft. to E line of farm, A. C. Caldwell Sur. ..... T.D. 515 ft.; standing.
Ray & Henze's No. 1 Hatech, in C of tract in S. Hamilton Sur. ..... T.D. 540 ft.; S.D.

WEBB COUNTY

O. W. Killam's No. 4 Bruni, 5,050 ft. to NE line, 7,675 ft. to SE line of El Ranchito tract, J. V. Borrego grant ..... Derrick.
Power & Dettenhalm's No. 1 Cowan & Goss, 1,870 ft. from W line, 1,656 ft. from N line of Sur. No. 1,606. T.D. 405 ft.; standing.
Fansler, Johnson & Peacock's No. 1 Laurel, 425 ft. to N line, 600 ft. to E line of Blk. 10, Sur. 271 ..... T.D. 1,615 ft.; standing
W. R. Shankle's No. 1 Ellison Furniture & Carpet Co., 150 ft. from SW and NW lines of Blk. 2, Sur. 466 ..... Rigged up.

WILLIAMSON COUNTY

Burns et al's No. 1 Wilder, 1,800 ft. to N line, 200 ft. to W line of tract in H. Owens Sur. ..... T.D. 1,480 ft.; no report.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown ..... T.D. 1,595 ft.; S.D.
McLean et al's No. 2 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tract in B. Manlove Sur. ..... Rigging up.
G. B. Peterman's No. 1 Galler, 1,800 ft. from S line, 150 ft. from W line of 140-ac. tract in H.Y.&B.R.R. Sur. ..... T.D. 1,100 ft.; drlg.
R. S. Wilson's No. 1 Speckles, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland ..... T.D. 875 ft.; S.D.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. ..... T.D. 1,600 ft.; abnd.

ZAPATA COUNTY

Ballard & Mercer's No. 1 Flores, 500 ft. from NE line, 580 ft. from SE line of Blk. 27, Porcion 37 ..... T.D. 1,800 ft.; drlg.
George Ball's No. 1 Gutierrez in Charco Redondo grant, taken over from Moore et al to deepen ..... T.D. 2,065 ft.; drlg.

ZAVALLA COUNTY

Carpenter & Jenkins et al's No. 1 John Wolf, Sec. 8, Abstract 1,199 ..... T.D. 767 ft.; setting csg. to test show of gas.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 36)

Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16 ..... S.D. 1,965 ft.
A. A. Tutin's No. 1 Mickie, Sec. 7-13-12 ..... Location.
Valters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13 ..... S.D. 1,266 ft.

MOREHOUSE PARISH

United Gas Public Service Co.'s No. 2 Sandidge, Sec. 11-20n-4e, 656 ft. S, 1,332 ft. W, NE cor. NW ..... S.D.; high wtr.; 2,132 ft.

NATCHITOCHES PARISH

Dr. H. S. Gerson's No. 1 Smith, Sec. 11-10-8, 2,000 ft. N, NE cor. of irregular Sec. 10, in Sec. 11 ..... S.D. 585 ft.
Dr. H. S. Gerson's No. 2 Smith, Sec. 11-10-8, 200 ft. N and 300 ft. W of NE cor. ..... Location.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 ..... S.D. 1,518 ft.
R. A. Keaton's No. 1 Stephens, Sec. 25-10-6, 320 ft. N and W, SE cor. NW NW ..... S.D. 178 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... S.D. 1,380 ft.

OUACHITA PARISH

J. J. Potts, agent's No. 1 Robinson-Reed, Sec. 11-18-4e, 1,745 ft. N, 780 ft. E, SW cor. Sec. ..... Set 12-in. 198 ft; 8-in. 832 ft; 6-in. 2,145 ft.
Wilson & Mitchell's No. 1 Williams, Sec. 5-16-1e, 330 ft. E, 240 ft. S, NW cor. SW SE ..... Drlg. chalk 2,604 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11 ..... Spudded and S.D. 50 ft.

RICHLAND PARISH

National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... S.D. 2,515 ft.

SABINE PARISH

Baird & Hunter's No. 1 Petty, Sec. 11-7-11 ..... Derrick.
Baird & Stone's No. 1 McNeely, Sec. 14-7-11 ..... Set 6-in. 2,375 ft.
Beene et al's No. 1 Ezernack, Sec. 2-7-13, 1,070 ft. S, 250 ft. W, NE cor. ..... Drlg. 1,600 ft.
Coates Pet. Co.'s No. 1-B S. S. Martines, Sec. 3-7-13, 330 ft. S and W, NE cor. SE NE ..... Location.
W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Derrick.
W. M. Coates et al's No. 1 Mansfield Hardwood Lbr. Co., Sec. 36-8-13, SW cor. SE SE ..... Testing 2,372 ft.
B. A. Ferrell's No. 1 Haley, Sec. 6-7-12, 300 ft. S and E, NW cor. NW SW ..... Location.
Frank Foster, Inc.'s No. 1 Stephens, Sec. 20-9-11, 330 ft. S and W, NE cor. NW NW ..... Set 12½-in. 150 ft; drlg. 1,900 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Reaming to bottom 4,788 ft.
T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... S.D. 2,243 ft.
Geo. LeGrand's No. 1 McGough, Sec. 3-8-10 ..... Derrick.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13 ..... Drlg. 2,805 ft.

E. F. Neely's No. 1 Cobb & Alford, Sec. 14-7-11, 200 ft. S, 100 ft. E, NW cor. NE SW ..... W.O.S.R. 2,565 ft; (corrected).
H. W. Perritt's No. 1 Brown Lbr. Co., Sec. 6-7-10, 330 ft. N and E, SW cor. SW SE ..... Set 10-in. 103 ft.
Service Drlg. & Royalties Corp.'s No. 1-B Gardner, Sec. 7-7-10, 330 ft. S and E, NW cor. SW NW ..... Testing 2,812 ft.
J. E. Smitherman's No. 1 Smith, Sec. 7-7-10, 330 ft. S and E, NW cor. NW SW ..... Testing 2,800 ft.
Southland Drlg. Co.'s No. 1 Frank Martinez, 330 ft. S and W, NE cor. NW, Sec. 11-7-13 ..... Drlg. 2,120 ft.
Southland Drlg. Co.'s No. 2 F. Martinez, Sec. 11-7-13, 330 ft. S and E, NW cor. NE NW ..... Derrick pattern.
Southland Drlg. Co.'s No. 1 Gilbert Martinez, Sec. 2-7-13, 330 ft. N and W, SE cor. SW SW ..... Derrick pattern.
Southland Drlg. Co.'s No. 1 C. E. Patterson, Sec. 2-7-13, 330 ft. N and E, SW cor. Sec. ..... Set 6-in. 2,050 ft.
The Texas Co.'s No. 1-B Grauque, Sec. 10-7-13, 330 ft. S and W, NE cor. SE ..... Set 10-in. 54 ft; drlg. 940 ft.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. 1,200 ft.
C. H. Tuttle et al's No. 1 Byrd, Sec. 7-7-10, 330 ft. S and E, NW cor. ..... Dry and abd. 2,718 ft.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

ARKANSAS

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D.; W.O. 814 ft.

CLAY COUNTY

S. C. Joffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-3 ..... S.D. 1,350 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12 ..... Rigged up and S.D.

CLEBURNE COUNTY

(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,740 ft.

DALLAS COUNTY

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. SE, Sec. 11-9-15 ..... Arranging to resume drlg. at 2,514 ft.
Zepp O. & G. Co.'s No. 3 Hillman, Sec. 20-10-13, 180 ft. N, 450 ft. E, SW cor. NW NE ..... Location.

DREW COUNTY

Co-Operative Dev. Co.'s No. 1 Ogles, Sec. 35-15-5, 330 ft. S and E, NW cor. NE NW ..... S.D. 1,890 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... S.D. 2,800 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W.O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17.. S.D. 2,011 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D.; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... S.D. 1,812 ft.

PRAIRIE COUNTY

Powell Creek O. & G. Co.'s No. 1 Kloss, NE SW, Sec. 3-4n-6w ..... Partly rigged up and S.D.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D.; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D. 1,860 ft.

SEVIER COUNTY

Tristate Oil Co.'s No. 1 Grimble, Sec. 34-8-22, S½ SW .. S.D. 950 ft.

UNION COUNTY

Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... Cleaning sand out of well 2,134 ft.
H. H. Helms' No. 1 C. H. Murphy, NE cor. NW NE, Sec. 31-16-14 ..... Coring 2,155 ft.
L. M. Hill et al's No. 1 J. W. Barnes, Sec. 21-19-16, NE cor. Sec. ..... Derrick.
Sunby et al's No. 2 Perdue, Sec. 33-16-14, 75 ft. S, 150 ft. E, NW cor. Sec. ..... W.O. 3,247 ft.
Wilson & Chapman's No. 1 King, Sec. 3-18-13, 330 ft. N and E, SW cor. NE NE ..... Derrick.
Wilson & Chapman's No. 1-A D. Norman, 330 ft. S and E, NW cor. N½ NE SE, Sec. 3-18-13 ..... Derrick.
Wilson & Chapman's No. 1 K. D. Parker, Sec. 3-18-13, 330 ft. N and E, SW cor. S½ NE SE ..... Drlg. lime 2,360 ft.

WASHINGTON COUNTY

(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY

(Cable tools)

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Logan & Elliott's No. 1 Smith, 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... S.D. 4,505 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 1,880 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.

CASS COUNTY

J. F. Morrisey's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... S.D. 3,670 ft.
Davis & Pigg's No. 1 Roy Bryan, SW cor. Roy Bryan 88-ac. tr., Albert H. Lattimer Sur. ..... S.D. 2,860 ft.
William S. King's No. 1 D. W. McDonald, Martha Ingram Sur., 688 ft. W, 1,343 ft. N, SE cor. Lot 5, McDonald 61-ac. tr. ..... Reaming to bottom 2,265 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.
Olds & King's No. 2 Anthony, John C. Byers Sur. ..... S.D. 1,750 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.

HARRISON COUNTY

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 350 ft. from E line of 105-ac. tr., Findley Sur. ..... S.D. 4,195 ft.
Ryan Cons. Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur. ..... Derrick.

MARION COUNTY

Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur. .. Spudded and S.D.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D. 2,394
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in James Hanks Sur. ..... S.D. 3,055 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

SHELBY COUNTY

Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ... Drlg. 2,820 ft.
Harry Elliott's No. 1 Pickering Lbr. Co., 1,000 ft. N, 150 ft. E, SW cor. 361-ac. tr., G. H. Patterson Sur. .. Setting 6-in. 1,487 ft; T.D. 1,495 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. .... S.D. 3,334 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... S.D. 3,246 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... S.D. high wtr. 3,393 ft.
Ridgeway et al's No. 1 Polley, Dominguez Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... Set 8-in. 822 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... S.D. 3,457 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 36)

Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-12 ..... Whipstocking 4,390 ft; T.D. 4,500 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D.; W.O. 2,579 ft.
Pelican Nat. Gas Co.'s No. 11 La. Long Leaf Lbr. Co., Sec. 10-7-11, 330 ft. N and W, SE cor. NE NW ..... W.O.S.R. 2,592 ft.
Ohio Oil Co.'s No. 14 Bowman-Hicks, Sec. 3-7-12, 330 ft. S and W, NE cor. NW SW ..... Drlg. chalk 2,660 ft.
Sabine Prod. Co.'s No. 3 Pearce, Sec. 10-7-11, 330 ft. S and E, NW cor. SE NW ..... Derrick.
Smith et al's No. 1 Hale, Sec. 1-7-13, 330 ft. S and W, NE cor. NW SE ..... Tested dry; waiting orders 2,505 ft.
Stovall Drlg. Co.'s No. 3 Nulton, 330 ft. N and W, SE cor. SE NE, Sec. 2-7-13 ..... Location.

ARKANSAS

UNION COUNTY—EL DORADO

Ark. O. & G. Co.'s No. 4 Anderson, Sec. 31-17-15, 2,005 ft. S, 150 ft. W, NE cor. NW SW ..... Testing 2,190 ft.
Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... S.D.; high wtr. 7,255 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1-B Hadley, Sec. 3-18-13, 330 ft. S and W, NE cor. SE NW ..... T.A. 3,545 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur. .... S.D. 3,194 ft.
Nat. Gas Prod. Co.'s No. 3 Mays, 158 ft. S, 443 ft. W, NE cor. 42.5-ac. tr., Jane Thorpe Sur. ..... S.D. 3,038 ft; high wtr.
United Prod. Co.'s No. 12 Werner, 1,959 ft. W, 556 ft. N, SE cor. 66.6-ac. tr., B. C. Jordan Sur. ..... Derrick abd.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. ... Location.

MISSISSIPPI

HINDS COUNTY

James Alexander, tr.'s No. 1 Fuller, Sec. 26-6n-1e, C NW NE ..... Location.
Ferguson-Fuller et al's No. 1 Cruse, Sec. 34-6n-1e, 420 ft. E, 170 ft. N, SW cor. NW ..... Began Feb. 18; drlg. 40 ft.
Love Pet. Co.'s No. 1 Interior Lbr. Co., Sec. 2-5n-1e, 90 ft. W, 270 ft. N, SE cor. SW ..... Set 15½-in. 40 ft; 10-in. 741 ft.
McGuire et al's No. 1 Spring Lake, Sec. 11-5n-1e, 250 ft. N, 450 ft. W, from center of Sec. ..... Derrick pattern.

RANKIN COUNTY

Cummins & Montgomery's No. 1 Ivey, Sec. 13-5n-1e, NE Lot 10, Blk. D, E. Jackson Pl., First Addn. ... Derrick.
Meredith et al's No. 1 Strowder, Sec. 12-5n-1e, SE cor. SW NE ..... Set 10-in. 45 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

HINDS COUNTY

Company, farm and location—	Remarks:
Atkins et al's No. 1 Crane Lawrence, Sec. 23-6n-1e, 300 ft. E, 132 ft. N, SW cor. NE SE	Derrick.
Miss.-Minn. Oil Co.'s No. 1 Edwards Land Co., Sec. 23-6n-4w, 1,200 ft. N and E from center of Sec.	Rigging up.
Southern Pet. Co.'s No. 1 Wilton (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e	Waiting orders 2,498 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... Drlg. 3,245 ft.

LOWNDES COUNTY

Lowndes County Oil & Dev. Co.'s No. 1 Carr est., Sec. 34-17-16e, 1,320 ft. E, 330 ft. S, NW cor. Sec. ..... Rigging up.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E, SW cor. SE, Sec. 25-6n-11e ..... S.D. 840 ft.

NOXUBEE COUNTY

Thompson & Donohoue's No. 1 Donohue, Sec. 25-16n-17e S.D. 1,735 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e ..... Waiting on csg. 2,428 ft.
James Alexander, tr's No. 1 Taylor & Watkins, Sec. 1-5n-1e, 175 ft. N, 75 ft. W, SE cor. ..... Completed for 52,290,000 ft. of gas 2,347 ft.
James Alexander, tr.'s No. 1 Ridgeway-McGehee, Sec. 1-5n-1e, 200 ft. N, 320 ft. W, SE cor. NE SE ..... Rigging up.
Baker et al's No. 1 Rankinside Dev. Co., Sec. 6-5n-2e, 200 ft. N, 200 ft. E, SW cor. NW SW ..... Derrick.
Henslee et al's No. 1 Tanner, Sec. 14-5n-1e, 400 ft. S, 200 ft. E, NW cor. NE NE ..... Drlg. 2,215 ft.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Muse & Muse's No. 1 Cotton, Sec. 14-5n-1e, 1,320 ft. S, 200 ft. E, NW cor. NE NW ..... Drlg. 2,346 ft.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9 ..... Derrick.

SHARKEY COUNTY

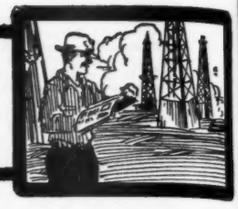
United Gas Public Service Co.'s No. 1 Lenhart, Sec. 14-14n-6w, 660 ft. N of C of S line of Sec. ..... Set 15½-in. 245 ft.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.

CLASSIFIED WANTS

Read by Oil Men Everywhere



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Mail your Classified Advertisement to

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

FOR SALE—EQUIPMENT

FOR SALE—New Braden Type B-15 heavy duty winch. Suitable for use with truck or tractor as rod and tubing machine. Address Box E-930, The Oil and Gas Journal, Tulsa, Okla.

200 AMP. General Electric Arc Welder; portable; 220 V. 3 ph. 60 cy. Complete. Like new. $350. 7x6 Ingersoll-Rand Type ER-1 Air Compressor. Like new. $225. 8x6 Ingersoll-Rand Type ER-1 Air Compressor. Like new. $250. 36"x18' Fifield Screw Cutting Lathe. $650. Also large stock of lathes, shapers, pipe machines, bolt threaders, etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, Ohio.

20 Waukesha engines, heavy-duty, 4-cyl., 120 H.P. Cheap.
MERTES MACHINERY CO.
1622 S. First St., Milwaukee, Wis.

LATE MODEL diamond core drill, also light rotary. Address Box E-973, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE
Second hand material—8¼" casing 3,000'; 6¼" casing 110,000'; 4⅞" casing 7,000'; 2" tubing 150,000'; 2" pipe 75,000'; engines, powers, tanks, rods, jacks, pulling machines. PRICES ON APPLICATION. RECAM COMPANY, Phone 525, CHERRYVALE, KANSAS.

FOR SALE—22,000 feet of 16"O.D.x ⅜" pipe in 40' lengths, P.E. Used one year as surface water line. The Sawhill Mfg. Co., 418 Oliver Bldg., Pittsburgh, Pa.

BARBER-GREENE Ditchers, three Model 44-C, one 19-inch boom Pipe Line Special, new; two 12-inch booms; ten 2-ton, one 5-ton Kingham pipe trailers. Address Box E-880, The Oil and Gas Journal, Tulsa, Okla.

OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

RANCHES AND FARM LANDS

RANCH land in Texas and New Mexico, 40 acres to 400,000 acres, improved or unimproved, $2 per acre up; cash, terms or trade for business property, stocks or bonds. Amos Poe, Andrews Building, Dallas, Tex.

5,000-ACRE stock farm located 20 miles west of Kenton, Oklahoma, all valley land in Cimarron river valley, running water, 600 acres under irrigation, 300 in alfalfa. Extra well improved farm alone will produce from 8 to 10 thousand dollars each year. Must sell. A. M. Sullivan, Conhoma, Texas.

BUSINESS OPPORTUNITIES

WITH $10,000 CAPITAL—Believe can make a profit of $100,000 in six months' time trading in commodities. Time is here now. Years of experience. GREGG SNYDER, 25 Broadway, New York.

OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

WANT FINANCIAL PARTNER to assist in development of gold mining property quartz in proven district. Will give interest. John Rodanic, Box 715, Rock Springs, Wyo.

UTILITIES WANTED
We are in the market for utilities both gas and electric. Send all details.
Donovan Construction Co.,
Builders Exchange Bldg.,
St. Paul, Minn.

PETROLEUM PRODUCTS broker with excellent clientele wishes to communicate with refiners, marketers and compounders of Mid-Continent paraffin base and Pennsylvania lubricating oils regarding Pacific Coast distribution. Address C. Williams, 2519 Washington Blvd., Ocean Park, Calif.

FOR SALE—Oil and Gas land 235 acres, two proven wells drilled. Center New Field Hart and Berren Co., Ky. This is your chance for a real bargain. For more information, write P. O. Box 45, Horse Cave, Ky.

WANTED, someone to develop large block of Arkansas acreage. Have complete geological survey and maps. Address Box E-980, The Oil and Gas Journal, Tulsa, Okla.

MANUFACTURERS ATTENTION—Have been selling oil field equipment past fourteen years Oklahoma and Kansas. Can handle one or two more good items. Address Box E-981, The Oil and Gas Journal, Tulsa, Okla.

HELP
Can be given to growing oil and public utility corporations by distributing an unsold portion of treasury stock to our clientele.
FLETCHER MILLS AND COMPANY
Security Investments
11 South LaSalle
CHICAGO, ILL.

CASH—We are interested in financing for expansion purposes, producing Gas Properties. Available to market, preferably in Pennsylvania, New York or Canada. Frederick L. Wehrhan Associates, 500 Fifth Avenue, New York, N. Y.

REFINERY in Oklahoma City Field, small amount of cash will handle, a mint for someone. 305 Local Bldg., Oklahoma City.

MANY GREAT BARGAINS—Copper, Lead, Silver or Gold—Have no partners. C. J. Greene, Sells, Arizona.

MAILING LISTS

LIVE MAILNG LISTS
Stockholders' lists of Elliott, Joiner and others in oil royalties, leases and mining. Flory, Worth Bldg., Fort Worth.

INCORPORATIONS

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER, ALLWINE & ROMMEL
Suite 418-815, 15th St., N.W.,
Washington, D. C.

SITUATIONS WANTED

MANAGER AND SUPERINTENDENT
Graduate engineer, 12 years oil field experience with major and independent companies, in geological, scouting, land and leasing, drilling and production departments. Thoroughly experienced oil field manager with exceptional reference. Will accept position in any of above departments or in charge of operations or developments. Write Box E-972, The Oil and Gas Journal, Tulsa, Okla.

LAND AND LEASE MAN
College graduate, age 32, several years oil and gas experience, checking and buying leases and producing properties. Excellent references. Write Box 971, The Oil and Gas Journal, Tulsa, Okla.

WANTED POSITION, Charge of purchases and stores dept. with oil or manufacturing firm. Capable handling both departments in one unit. Eighteen years' experience. Address Box E-982, The Oil and Gas Journal, Tulsa, Okla.

REFINERY SALES ENGINEER—now employed desires change. Well acquainted in Mid-Continent and Gulf Coast fields. Address Box E-983, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

PIPELINERS, Welders, Mechanics, Operators, Carpenters, Bricklayers and other tradesmen send stamped envelope for interesting information regarding employment. P. O. Box 1523, San Antonio, Texas.

WNATED—Salesmen. High class proposition big proven area East Texas. Monthly dividends paid from producing properties. Penn Oil Corporation, 706-12 Herskowitz Bldg., Oklahoma City, Okla.

ROYALTIES—PRODUCTION

JAMES B. McANALLY
Speculative and Investment Royalties
Hunt Building, Tulsa, Okla.
Service to dealers, Oklahoma, Kansas and East Texas.

ROYALTIES in the territory of coming big development in Kansas, Stafford, Barton, Ellsworth, Kingman and Stevens Counties, core drilled. Also producing royalties. Special service to brokers. Send for list. James R. Haynes, Grantville, Kans.

For INCOME AND SPECULATIVE Oil Royalties for Investment, write
SPENCER ROYALTIES CO.
Thompson Bldg., Tulsa, Okla.

PRODUCING royalty Urania, La., ⅛ under 900 acres. Has paid $11,000 in 5½ yrs. from 30 acres developed. Av. $165 monthly. If entire acreage productive should produce ten million bbls. today's price 52 cts. av. 5½ yrs. 85 cts. Operating company owns pipe line loading racks all facilities. Circumstances force me to sell ⅛ of this ⅛ for $3,500.00 cash. Has paid monthly 5½ yrs. looks good for years to come being lub crude. Write Mrs. Guy Walworth, Ashland, Wis.

1,800 OKLAHOMA County royalty buyers' names and addresses compiled from court house records. Price $5.00. Clyde Kelly, 608 Perrine Bldg., Oklahoma City, Okla.

Chester Imes
High Class Service to Dealers in Producing Oil Royalties.
Petroleum Bldg.
Oklahoma City, Okla.
Bell System Teletype
OKCY—8

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One point borders and ten point capitals are allowed, larger type not accepted.

Changes in copy must be in our office 10 days in advance of publication date.

Mail your advertisement to the Largest Classified Section in the Oil Industry.

THE OIL AND GAS JOURNAL
TULSA OKLAHOMA

ROYALTIES PRODUCTION

PRODUCING ROYALTIES
Specializing in East Texas
John L. Dickson, Box 1037, Tulsa, Okla.

UNUSUAL OPPORTUNITIES FOR ROYALTY INVESTORS AND DISTRIBUTORS
THE MERCURY COMPANY
Philtower Building, Tulsa, Oklahoma

GET A FREE copy of "The Oil Royalty Analyzed" with a subscription to The Royalty Age.
The book, attractively bound, printed in two colors, contains 40 pages of essential information and 30 illustrations covering a wide range of activity.
Current issue includes news reports and data of definite value to those interested in oil royalties. Mail your order now.
Your free copy of "The Oil Royalty Analyzed" and the current number will be mailed to you at once. $2.00 a year in U.S.A.; $2.50 elsewhere.
THE ROYALTY AGE
Midco Building Tulsa, Okla.

MONTHLY INCOME-paying Royalties under Oklahoma City and Seminole Wilcox Sand wells offered. W. E. Cook, 342 Court Arcade, Tulsa, Oklahoma.

LEASES—PRODUCTION

VALUES ARE DEFLATED
Are you interested in oil and gas properties that meet your requirements and can pass inspection? Principals who are in the market, by stating specifications, can receive expert guidance and valuable information without obligation.
A. D. LAMM, Engineer
411 S. Elwood Ave. Tulsa, Okla.

TEXAS PANHANDLE Gas Production and Royalties is my Hobby—get my prices. Wire or write. E. B. Reeves, Box 13, Alanreed, Gray County, Texas.

LEASES—Barton Ellsworth Arch territory in Stafford County, Kansas. Write today. James R. Haynes, Grantville, Kansas.

HOT EAST TEXAS Woodbine Wildcat just starting 50 to 1 bet few weeks. E. Croft, Proctor, Texas.

FOR SALE—Choice block of 7,000 acres of Gas Leases located ahead of production in well known gas producing County of New York state. Priced right. J. H. Harmon, 14 Massa Ave., Mansfield, Ohio.

FOR SALE

FUEL OIL, crude oil, gasoline, distillate, tank car lots, shipped to any point. Get our prices. East Texas Fuel Oil Co., 208 Isham Bldg., Longview, Texas.

EASTERN FIELDS

(Continued from Page 50)

George Smith and others are now rigged up to start on the C. A. Kendall farm, and J. P. Young and others have the rig standing on the Dan Connally farm.

In Calhoun County, and in Washington district, Holly Jarvis and others are drilling on the Hoke Jarvis farm and have reached 1,400 feet. In the same district the same operator has made a location on the L. H. Crookshank farm. In Lee district, which now presents the most active section of this county, Harlet Ferral and others are about in with a test on the William H. Wood farm which has reached 2,091 feet. Ed Hess and others are drilling at 1,610 feet in No. 4 on the John Evans farm, Lee district, and have room for another well. F. F. McIntosh reached 500 feet and shut down in a fourth well on the John Riddle farm, in this district, and has the materials on the ground for No. 3 on the Fox and Morgan lease. In the same section, this operator is ready with a location for a test on the Carr Shaffer farm. In Sherman district, A. H. Jackson is fishing for the tools at 830 feet in a third well on the T. J. Jackson farm. In Center district, Walter H. Bickel has built a rig for a second test on the George D. Starkey farm, and in Sheridan district, the Conservation Oil & Gas Co. has a rig standing for a second test on the James Kerby lease.

Boone County presents some activity but is gradually reducing new work to a minimum. In Scott district, the Cambridge Gas Co. is down 1,200 feet in a second test on the C. C. Lewis heirs farm and now has a fishing job. In Washington district, G. P. Jones has reached the 1,000-foot level in a second test on his part of the J. Albert Covert farm, and the Hill Gas Co. 793 feet in a second test on its lease of the same tract. In Sherman district, the Pure Oil Co. is down 2,013 feet in its No. 56 on the Federal Coal Co. tract. On the Central Trust Co. lease in the same district, Godfrey L. Cabot is shutting off water at 2,656 feet in a second test of that tract. In Scott and Peytonia districts, the Illinois Glass Co. is preparing to resume drilling on several leases.

Work in Kanawha County is about at a standstill with but two wells drilling, both in trouble. In Elk district, the deep test of Grosscup and others on the Samuel M. Burdette farm is shut down at 4,758 feet with two strings of tools and the bailer in the hole. In Union district, Ellyson and Wilson are fishing for the tools at 1,710 feet on the Virgil C. Tate farm.

SOUTHWEST PENNSYLVANIA

The week passed in Southwest Pennsylvania with no completions and no drilling. Work has been virtually halted in all sections of this field and operators admit their inability to continue new work with any hope of a return on their investment as long as the low prices for crude prevail and until natural gas consumption returns to normal. The 75 per cent allowable production is being adhered to strictly and where the wells are too small to admit of this in safety to the sand, surplus production is being stored on the lease but not run.

CANADIAN FIELDS

(Continued from Page 43)

"Briefly, the plan proposed by the C. and E. Corp., which contemplates voluntary agreement and operation of the pool by private control, contains the following features:

"Limit the pooled area to that portion of Turner Valley lying south of a line drawn through the middle line of Section 26-20-3w5, and included in the area mapped as 'Benton shale' on the most recently published map of the Dominion Geological Survey.

"This is a much smaller area than proposed under the Fisher agreement, and excludes all the area north of the middle line of Section 26, and all the area south of this line not included in the area of Benton outcrop. It is considered that no restriction should be placed on drilling outside of the zone covered by the agreement.

"Form a corporation to operate the field, to be in the hands of a board of five directors, two elected by those referred to in the Fisher agreement as 'independents', two by Imperial Oil and those companies associated with the Imperial Oil Co., and one by the royalty interests; the board to appoint a general manager who would be responsible to them for the entire management of the field.

"Purchase by such corporation of the Royalite scrubbing plant and gas gathering lines, paying for same out of gas revenues.

"Acquire Royalite contracts to sell gas to the Calgary Gas Co. and Imperial Oil refinery on a royalty basis.

"Take 10 per cent of the production of the field, 5 per cent of which will be used as a bonus for land surrounding isolated wells and 5 per cent for undeveloped acreage.

"After deducting the cost of operation, provide a reserve for contingencies and further drilling when such may appear advisable.

"Control of naphtha sales, including those falling within the category of direct sales, but leave to the operator the right to specify to what refinery his portion of the naphtha shall be sold.

"Obtain from the royalty interests a contribution toward the cost of purchasing the scrubbing plant and gas gathering lines, such contribution to be based on their proportionate royalty interest in gas.

"To provide for appeal to the Public Utility Board by any party who feels that his interest has been adversely affected by any decision of the board of directors.

"To provide for the separation of gas and naphtha earnings, and to charge to each their legitimate portion of the operating cost.

"To obtain an additional 4 cents per 1,000 feet for gas sold from the field to remunerate the operators for curtailment of revenue by reason of their adoption of voluntary conservation methods.

"The basis of participation of the various companies shall be as follows:

"For naphtha (a) the basic participation will be based on naphtha production tests to be made on each individual well under the direction of the supervisory engineer of the Alberta Department of Mines. It is suggested that these tests should be taken over a period of 10 days or longer if necessary to determine on a comparable basis the actual average potential daily production of each well. At the same time the naphtha tests are being made, closed-in pressure and delivery volumes against a uniform back pressure of 500 pounds will also be taken. (b) The daily naphtha capacity of each well will be multiplied by the closed-in pressure less 400 pounds to get a factor which will represent the relative basic participation of the various wells. (c) Ten per cent of the basic participation of all wells as outlined above shall be available to distribute to: (1) undrilled acreage, (2) isolated wells, as follows:

"(a) Undrilled acreage—The normal drainage area per well shall be taken as 80 acres, and all leases with a greater acreage per productive well completed in the limestone shall be given an additional participation in consideration of its undeveloped acreage. For this purpose a 5 per cent participation shall be divided on an acreage basis pro rata among such leaseholders or owners entitled to this participation. (b) Isolated wells—Limestone wells situated 1,320 feet or more from any other well producing from the same formation shall receive an additional participation on account of its isolation. Five per cent participation in the field shall be available for this purpose, and shall be distributed equally among the 10 or more wells which come under this category. The participation attributable to each of the foregoing wells shall be divided among the property holders in proportion to their relative holdings within an area of a circle having the well for the center of a radius of 1,320 feet.

"For gas (a) The participation of the various interests in the gas to be obtained from the field shall be determined, in general, in the same manner as outlined for naphtha, except that the delivery volume (either calculated or directly determined) at a uniform back pressure of 500 pounds shall be used in place of the daily naphtha production. This amount in terms of millions of feet and/or fraction thereof shall be multiplied by the closed-in pressure less 400 pounds to get the basic participation of each well. Ten per cent of the basic participation shall be divided among isolated wells and undeveloped acreage on the same basis as outlined in naphtha distribution.

"If at any future time the gas controlled by the company is processed in an absorption or similar plant for the extraction of naphtha, it is understood that the division of profits from such operation shall be based on the gas participation of the different operators rather than on the naphtha participation.

"Up to the present we have obtained approval of our proposals from operators representing more than 50 per cent of the naphtha production in Turner Valley, and we expect this number will shortly be considerably increased."

Early reports indicated that the companies subscribing to the new scheme included Royalite Oil Co., Hudson's Bay Co., Canadian Pacific Railway, Securities Assets, Ltd., Sterling Pacific Oil Co., Mayland Oil Co., Dalhousie Oil Co. and Foothills Oil & Gas Co. These represent either holders of mineral rights or operating subsidiaries of Imperial Oil, Ltd.

New Drilling Regulation

The Alberta government has issued an order-in-council prohibiting the taking of oil and gas from different horizons at the same time from the same string of casing, unless written permission is secured from the director of the mines. The new regulation is apparently intended to put an end to the occasional practice of leaving open hole between the Home and Dalhousie sands and taking production from both; and incidentally to insure against loss of oil by seepage and against possible water intrusion.

Twin River Test

In the border fields, southern Alberta, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, on the Twin River structure, is testing production from the top of the Madison lime at around 3,890 feet. The well is pumping oil and water and recovering about 10 bbls. of crude per day. A shot will probably be tried.

Texas-Imperial Well

On the Lethbridge structure, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, is reported starting to drill in after cementing at 4,551 feet on top of the oil horizon in the Madison limestone. In addition to a show of oil, considerable gas pressure was reported. The crude sample tests somewhere between 31 and 35 gravity.

Hudson's Bay Test

In the Keho Lake district, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is standing cemented at 4,920 feet and has stacked tools till spring. Drilling will resume about the middle of April. The test got a good show of oil with some gas in the top of the Madison lime at 4,920 feet. While drilling out the cement plug the 8-inch tools stuck in the casing about 40 feet off bottom. A slip socket which got a hold on the tools broke and left so much iron in the hole the bit could not be recovered. In the effort to work the tools loose a casing leak or shoe leak developed permitting water from the Sunburst sand to enter the hole; and later when a shot was used to free the bit, oil and gas from the Madison broke through the cement plug, indicating the water from the Sunburst had reached the porous zone of the lime. To protect the latter it was decided to cement back and redrill to the lime, sidetracking the old hole. A gap was shot in the casing at 4,815 feet and the hole plugged with the top of the cement at 4,800 feet. Redrilling to the oil sand will start in April.

Border Operations

In the Milk River area, Commonwealth Petroleums' No. 1, LSD 8, Section 9-3-15w4, is drilling with rotary around 5,150 feet with cores showing some oil saturation.

Ontario Drilling

With five tests completed in its new producing area in Raleigh Township, north of the D'Clute Field, Olga Oil & Gas Co. is preparing to start its No. 6, on the Jenner sideroad in Raleigh, about 1,500 feet northwest of No. 5.

Considerable new drilling is expected in the gas field near Mabee's Corners, in Bayham Township, Elgin County, and adjacent areas in the southern part of Norfolk County. Recently Dominion Natural Gas Co. completed a test on the W. F. Kingston farm with a reported initial of 550,000 feet from the Clinton sand at around 1,100 feet. A second test has been started on the Kingston farm and at least eight more are planned.

CHAMPLIN SUIT ADVANCED

WASHINGTON, D. C., Feb. 29.—The U. S. Supreme Court has reassigned for argument March 23 the appeal of the Champlin Refining Co. against enforcement of the Oklahoma curtailment rules.

INCREASES EAST TEXAS RUNS

HOUSTON, Tex., Feb. 29.—Effective February 26, Humble Oil & Refining Co. increased the allowable which it will purchase or take from East Texas properties from which it is running oil from 65 bbls. daily per well to the maximum of 75 bbls. per well as limited by the State Railroad Commission. The new order amends the one issued effective February 21 in which the company followed the lead of other companies in abandoning the Sunday shut down program but restricting runs to 65 bbls. per well, seven days a week.

CLASSIFIED WANTS

ROYALTIES PRODUCTION

WILL SELL to the highest cash bid, this valuable landowner's Royalty. ⅛ of ⅛ of the landowner's full royalty 160 acres, Northeast ¼, Section 12, Block A-46, public school land, Andrews County, Texas. Production three sides. Box 513, Hernover, N. H.

ECTOR COUNTY now watched by all. Lease and Royalty bargains. Anderson, Linz Bldg., Dallas, Tex.

MONEY RAISING

JAMES E. MILLER CO. will co-operate with responsible firms or parties seeking aid in financing projects of higher order. 207½ East Third Street, Tulsa, Okla.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 2443 N. W. 12th, Oklahoma City.

JOHN MORRIS, 3608 WARREN ST., PHILADELPHIA, Pa., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

CAPITAL: An exp. dependable broker will aid in financing projects of merit. Amster Leonard, East Orange, N. J.

MONEY RAISING

Inquiries solicited from corporations interested in raising capital through marketing corporate securities.

THE BROOKWORTH CO., INC., 110 East 42d St., New York.

CAPITAL SECURED

Corporations Organized and Financed Federal Registrar, 341 Fifth Ave., New York.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

INVVESTMENTS

EXTRAORDINARY OPPORTUNITY to obtain five or ten-year paid-up mineral lease on LaSalle Uplift, Dimmit County, Texas. 10,000-acre solid block. Address Owner, Box 656, Houston, Tex.

Chicago Gasoline Market Improves

Better Buying for March Delivery Promises to Establish a Low of 3 Cents for U. S. Motor Grade. Naphthas Strong

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Feb. 29. — Gasoline tank car markets Monday were showing a much better tone in Chicago district, and a narrowing of the price ranges in the low octane material toward the higher quotations is in evidence. While the jobbing trade has shown extreme reluctance in placing orders, weather conditions last week and early this week are rapidly clearing up the weak spots in the gasoline tank car markets and the trade is beginning to consider the advisability of preparing for the spring demand season considerably ahead of time. One has to go back nearly 60 years in the Chicago weather records to parallel the warm sunshine which is greeting the district in February, and it would be strange if a bulge in buying did not appear some time this week. Marketers in Chicago are receiving reports from their representatives in the territory that roads which have been practically impassable throughout the winter are now drying up and beginning to take traffic.

Marketers Reported Buying

A number of marketers in the territory have apparently grown tired of waiting for things to happen, according to reliable reports, and are buying considerable material for delivery over March. One of these paid a price of 3 cents for 57 plus octane U. S. Motor gasoline for March shipment, and a price of 2⅞ cents for the low octane grade over the first half of the month. Another buyer took 50 cars of the low octane material for immediate shipment at 2¾ cents. This activity is causing many of the refiners to hesitate in naming prices which have been current for some weeks, and in several cases the refiners have boosted the price of the low octane gasoline to 3 cents. In Chicago district oil trade circles it is confidently expected that this price will figure as the low before the close of the week. Earlier last week there was much talk that the spot markets could be placed in a firm position if the larger marketers would buy about 300 cars of gasoline of the low antiknock grade. This week, however, it appears that such buying would have been good business and it is thought probable that increased demand will take care of the situation. There is one doubt that assails the minds of a number of distributors, and it arises from experience of the past year and the first two months of this year. This is the possibility that refiners will grasp opportunity by the forelock and after they have sold to the limit at the advanced prices will attempt to keep up their business by price cutting after the marketers are loaded with their goods. There are quite a few distributors in Chicago district who have refrained from taking a strong buying position for this reason. However, increased demand is making it necessary for them to move toward a more extensive scale of operation than the day-to-day business which has long characterized the markets.

Better Year for Contracts

After a year in which sellers' agreements were as unfavorable from the refiners' standpoint as could be arranged, there are good indications that in spite of the cool acceptance generally of the 4.5 and 5.5 with split above and below contract this year will see much less of the practically suicidal practices which at times last year promised, as one refiner put it, to force the seller to send along a check with the tank cars of gasoline. Where several months ago one heard frequently of marginal guarantees of 6.25 cents, and various concessions which cut the sellers' profits to nearly nil, one now hears that here and there a spread of 5 cents has been given. However, some of the contracts operating last year are apparently still in force, and one of these offers the distributor a price of three-eighths of a cent below the low of published daily quotations.

Naphthas Scarce

Good blending naphthas have become extremely scarce. Marketers in Chicago district have been advised by several refiners in the Mid-Continent and North Texas that they are sold out for some time ahead on these materials. Distributors have been offered small lots of 50° gravity, 160 initial and 420 endpoint water white naphtha of 65 octane number from an Oklahoma refinery for resale at 3.5 cents and the price has not deterred buyers.

The ready acceptability of this material hinges at this time on the low natural gasoline markets. One marketer is buying three grades of natural gasoline for blending with high octane naphtha. The first is under 88 gravity, 93 per cent recovery, 75 octane number, 24 pounds vapor pressure, and is offered at 1⅝ cents; the second is likewise under 88 gravity, has 93 to 95 per cent recovery, 75 octane number, 22 pounds vapor pressure, and is offered at 1¾ cents; the third is 78 gravity, 95 per cent recovery, 75 octane number and 18 pounds vapor pressure, and is quoted at 3 cents. Taking the second of these gasolines and blending it with a 65 octane number naphtha in the proportions of one natural to two naphtha, a low endpoint 61 gravity motor fuel of 68 octane number is produced at a cost of 2.97 cents a gallon.

Indiana-Michigan Freight Advance

Considerable talk of a freight advance for Indiana and Michigan is being heard in Chicago district oil trade circles. If official announcement of such an advance follows these reports of an early boost to freight rates, a decided bulge in activity may be looked for. In Indiana and Michigan the gasoline tank car markets are suffering from differential shipping competition. At Indianapolis gasoline from Kentucky refineries is being laid down at a price which figures 2.5 cents basis Group 3.

Scattered Price Cutting

Third grade gasoline service station and tank wagon prices were reduced at four points in the territory as follows: Milwaukee, service station cut from 14 to 12.5 cents February 23, with tank wagon cut following two days later; Peoria, service station cut from 12.1 to 11.9 cents February 22; Mason City, service station reduced to 12.5 cents from 14.1 cents February 24. The regular grade was cut here 1.5 cents, making the new service station posting 14.1 cents. At Grand Rapids the third grade service station price was cut to 12 cents from 13.5 cents, and the regular grade tank wagon price was reduced from 15.3 to 14.8 cents February 24.

70 Octane Regular

The long expected arrival of 70 octane regular grade gasoline in the territory became practically assured with the information received this week that Standard Oil Co. of Indiana is building the "world's largest cracking unit" at its Whiting, Ind., refinery. This unit has a daily capacity of 20,000 bbls. of crude oil from which it produces 70 per cent of 70 octane gasoline in five distinct operations. Gasoline operations are skimming, cracking, reforming and blending, while another operation is for the fuel oil, the only by-product aside from gas, in which the viscosity is lowered. A gasoline stabilizer and a vapor recovery system complete the setup. The company announces extensive cracking installations for its other refineries located at Casper, Wyo., Wood River, Ill., and Sugar Creek, Mo. Other companies known to be making extensive preparations for the production of a superior regular grade in the territory are Sinclair Refining Co., Pure Oil Co., Empire Oil & Refining Co., Bartles-Maguire Oil Co., and Globe Oil & Refining Co. It is reported that several refiners are experimenting with Mount Pleasant crude oil, desirable because of its proximity, with a view of processing it to próduce a higher antiknock motor fuel than has been obtainable.

Developments in East Texas have relieved the minds of most of the oil men in the district. The assurances that close control will continue until at least the middle of March, and that observers in the field find a considerable majority of the producers in favor of continued curtailment, has done much to ease the tenseness which followed the recent federal court decision ruling on the governor's use of the militia in enforcing proration.

Gasoline Tank Car Markets

Although the movement has not taken a strong hold in Chicago district, the action of a number of Mid-Continent marketers in buying gasoline for their March requirements this week and late last week, and the unexpected stand of refiners against using the lows of current quotations, has given the gasoline tank car markets a much better tone. The cold murky days are coming at rarer intervals and unless the weather becomes as fantastic unfavorably as it has been favorably, the inertia of buyers in the district should be overcome in short order. Until the demand makes larger movements necessary, however, it is certain that the distributors and jobbers will feel that it is safer to let the refiners hold the gasoline.

The effects of the current betterment have been to narrow the price ranges of the U. S. Motor gasoline of low octane specifications, and that of the low antiknock 60-62 400 endpoint material. The advance was an eighth of a cent from the low end making the new prices 2⅞ to 3 cents for the U. S. Motor, and 3⅛ to 3¼ cents for the 400 endpoint gasoline. There was no change in the other grades, the prices remaining as follows: For the 64-66 375 endpoint gasoline, 3¾ to 4 cents; for the fighting grade aviation gasoline, 4½ to 5 cents, and for the 68-70 360 endpoint, 4 to 4¼ cents. It is reported that competitive conditions continue to cause major refiners to shade prices on the aviation fuel. Some of the material upon which reductions are reported is said to be ethylized.

Naphtha Tank Car Markets

While the business in special naphthas, principally for materials used in paint making, continues good, these markets appear to be waiting for an advance in the gasoline markets. The naphtha business is much more centralized than the gasoline business, with Standard Oil Co. of Indiana, American Mineral Spirits Co., Anderson Prichard Oil Corp. and Deep Rock Oil Corp. furnishing practically all of the material sold in the territory. Shell Petroleum Co. promises to join this group as a factor in the naphtha markets. For this reason the sellers and jobbers are able to see more clearly the fallacy of expecting to increase demand by lowering prices. If the naphtha is needed a price in line with competitive solvents will be paid, while if the demand is absent slashing the price in half will not increase the sales a car. This applies in the gasoline business, but it is apparently a negligible consideration.

A major refiner who furnishes marketers with special naphthas reports a brisker contract business, with a considerable number of new contracts coming in with the continued firmness which has marked these markets since the advance earlier in the month. The blending naphtha price range has widened because of the inclusion of octane ratings in the specifications. The low octane 50-52 gravity, 450 endpoint blending naphtha is offered at 2¾ to 3 cents, while a price as high as 3½ cents is offered on a 65 octane naphtha of 50 gravity and around 415-20 endpoint. Other naphtha prices Monday were as follows: Cleaners' naphtha, 5⅝ to 5⅞ cents; lacquer diluent, both grades, 9 to 9¼ cents; rubber solvent, 100 initial and 300 endpoint, 5¾ to 6¼ cents; Stoddard solvent, 4⅞ to 5⅛ cents; petroleum thinner, 415 endpoint, 4¾ to 4⅝ cents; V.M.&P. naphtha, 5¼ to 5½ cents; petroleum spirits, 3⅞ to 4¼ cents.

Kerosene

After a dull two weeks the kerosene tank car markets put on a brisker appearance. A few Chicago marketers were forced to look around for material when a fire at the Oklahoma refinery of a seller forced a temporary shutdown, and the lower prices they expected to find did not appear. Kerosenes are reported holding firm at the following prices: From 2½ to 2⅝ cents for the 41-43 water white material, and 2⅝ to 2¾ cents for the 42-44 water white.

Gas Oil and Fuel Oil

Gas oil and fuel oil tank car markets have been quiet due to warm weather and continued low industrial demand. One of the major markets, the attitude of most of the sellers is that prices should be maintained at current levels as no more business will result from reductions. That the gas oil and fuel oil stocks are seriously engaging the refiners was evidenced Monday when one of the largest operators in the territory said that the company could get along very well with a slight demand for gasoline at this time if the weather would return to zero levels long enough to get a lot of distillate and heavier fuels out of the way. A few of the smaller refiners with cracking equipment are taking gas oil and 28-30 zero fuel oil in larger quantities as they increase their yield of higher octane gasoline. Probably one of the major developments in this line this year will be the manufacture of fuel oil as a real product rather than the production of fuel oil as a residue by-product. These fuel oils will probably be low in gravity and viscosity and with a high B.t.u. value. They will be products of the cracking operation.

The gas oil and fuel tank car markets are practically nominal as the movement for the past few days has been negligible. These prices are: 38-40 light straw, 2⅛ to 2¼ cents; 32-36 straw, 1⅞ to 2 cents; 38-40 straw, 2 to 2⅛ cents; 32-36 industrial gas oil, 1⅛ to 1¼ cents; 28-30 zero fuel oil, per barrel, 55 to 60 cents; 22-26 fuel oil, 32½ to 37½ cents; 18-22 fuel oil, 25 to 30 cents, and below 18 fuel oil (straightrun), 20 to 25 cents.

H. B. FELL RE-ELECTED

Harold B. Fell of Ardmore has been re-elected president of the Southern Oklahoma Oil and Gas Association. Others elected were O. V. Beck, Nacoma, Tex., vice president; George C. Gibbons, Ardmore, secretary; Harry Lamb, Healdton; Ward Merrick, George Strawn, Don Walker, M. K. McClure, Ardmore; Jack Travis, Frank Goin, John Cowden, Duncan, and C. C. Bell, Walters, all directors.

Stronger Undertone in Eastern Market

Lubs Working Into Firmer Ground and Antiknock Gasolines Displaying Steadiness. Favorable Weather Conditions Help

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Feb. 29. — A stronger undertone developed in East Coast refined products markets during the past week, lubricating oils working into firmer ground and kerosene and antiknock grades of gasoline displaying steadiness. The outstanding development in the gasoline market was an advance of 1 cent per gallon by Standard Oil Co. of New York and other leading marketers in the up-state New York area.

The continued increase in refinery gasoline stocks, although the rate of gain slowed down during the past week, has tended to undermine the statistical position of the gasoline market somewhat, and the current firmness of the spot market for the higher octane grades is a reflection of the unusually well sustained demand for these grades in the East this year. While the higher antiknock grades hold steady, however, the same cannot be said of the lower antiknock grades of U. S. Motor and there has been some increase in price cutting on these grades in Atlantic Seaboard territory during the past week.

Current holdings of gasoline at East Coast refineries, as of February 20, amounted to 5,923,000 bbls. As of February 21, stocks of gasoline at bulk terminals in the East Coast area totaled 8,325,000 bbls., with 647,000 bbls. in transit on that date. These combined stocks, it is held, give the East Coast division of the industry more than adequate reserve stocks, and efforts for further curtailment in runs at refineries in this district are being continued.

East Coast refiners have not thus far received any export business from Japan, in connection with the present hostilities of the Japanese military and naval forces, although contracts for approximately 500,000 bbls. of fuel oil for prompt and nearby shipment to Japan have been placed in California, of which Union Oil Co. of California received approximately 350,000 bbls. Further purchases of fuel oil for Japan, and possibly airplane gasoline and lubs, are looked for in the California market, although it is not expected that this business will become extensive enough to give Gulf or East Coast refiners a share of the gallonage.

Refinery Gasoline

Favorable weather conditions have made for continued heavy demand for top grades of U. S. Motor gasoline, and the refinery market for gasoline of 65 octane number and above continues held at a posted range of 6 to 6½ cents per gallon, at tank car lots with posted schedules being maintained. Jobbers, somewhat concerned over the increase in refinery stocks, are showing some disposition to taper off in their purchases, however, and are permitting their storage stocks to run low, being apprehensive over a possible lowering of posted quotations.

Heavier supplies of ordinary U. S. Motor gasoline, testing under 65 octane number, have weakened the market, and although sellers continue to post 5¾ cents per gallon for this grade, 5½ cents is nearer the actual market, and the situation is distinctly weak. The approach of warm weather is expected to substantially widen the market for the lower grade of gasoline, although considerable quantities of this motor fuel are now being taken by independent operators who are underselling the major marketers in many parts of the territory.

Refiners are making further efforts to get their surplus supply problem in hand, although it is not expected that the market will be in shape for a general price advance until late in the spring season, unless current abnormal weather conditions should continue, with gallonage holdings at its present high rate for the remainder of the winter.

Tank Wagon Gasoline

The principal development last week was the action initiated by Standard Oil Co. of New York in advancing tank wagon and service station gasoline prices 1 cent per gallon at Buffalo, Troy, Syracuse, Utica, Rochester and Binghamton, other major marketers following in the advance. No change was made in posted prices in the Metropolitan New York area, although a state-wide increase of 1 cent per gallon is indicated for tomorrow when the 3-cent gasoline tax becomes effective.

Widespread price competition has been resumed in the New York City area. Although the price cutting was inaugurated by the independent marketers, many of whom are handling the lower grades of U. S. Motor gasoline, large distributors marketing 65 octane number and better have been compelled to meet this competition with their standard brands, in cases where third grades are not handled.

Thus, with a posted price of 14.3 cents per gallon in New York City, many large-company stations are actually retailing gasoline at 9 gallons for $1, including state tax, which nets but 9.22 cents per gallon at the pump. Figuring a 3-cents-per-gallon margin for the station operator (in cases where independent operators are selling standard brands at this price level) the gross to the refiner is but 6.22 cents per gallon. When it is taken into consideration that the posted tank car price is 6 to 6½ cents per gallon at the terminals, and that refiners must pay storage, delivery and handling costs in their sales to the independent station operators, in addition to the multiplicity of accounting and other charges, it can be realized that the job of marketing motor fuel in the metropolitan New York territory is no bed of roses under present conditions.

East Coast marketers were greatly interested during the week in the announced plans of Continental Oil Co. to expand its marketing activities more generally in the North Atlantic Seaboard area. With the acquisition of a leading independent marketer in the Baltimore area, Conoco has materially strengthened its position in Maryland and the District of Columbia, and is expected to expand northward, taking in the New York and New England territories on a wider scale during the coming summer months.

Kerosene

Cold weather has made for continued activity in the tank car market, and a stronger feeling is in evidence, although off-priced offerings have not been entirely eliminated. The posted price for 41-43 water white in tank car lots remains at 5½ cents per gallon, at the terminals, but business can still be done at 5¼ cents.

Tank wagon gallonage continues to run into large totals in the New York and New England area, and reports from the South Atlantic territory likewise indicate a satisfactory volume. There have been no revisions in tank wagon or retail prices at any points in the East Coast territory during the week under review.

Lubs

Bright stocks were coming in for more demand from the domestic trade during the past week, and sellers were quoting the market at 1 cent per gallon over recent levels, light oil commanding 28 to 29 cents per gallon and the dark 27 to 28 cents.

Other grades of cylinder oils were likewise moving in better volume, although quotations remained without change.

Blenders and compounders have been holding operations down to a minimum, pending more clarification of the market outlook for the coming summer season, but recent demand has been larger than had been anticipated, and replacement buying has now become necessary.

With branded lub oils at last coming in for some share of the price cutting which has affected gasoline and other refined products during the past few years, refiners and marketers have found it necessary to reduce their retail prices on lubs and the outlook for the lub oil market, from the standpoint of both gallonage and profits, appears rather uncertain as yet.

Refiners report a slow recovery in the demand for industrial lub oils, quotations continuing unchanged on both red and pale oils during the week.

Fuel Oil

Heavy surplus stocks continue to keep the fuel oil market in easy position, and the posted price for bunker "C" oil remains unaltered at 60 cents per barrel, in bulk, at refinery terminals.

Marine sales have continued at routine levels throughout the week, with no evidences as yet of any sustained improvement in the situation. While more vessels are now engaging in the West Indies cruise business, many of these boats do part of their bunkering at Curacao or some other advantageous port during the cruise, and the amount of extra bunker oil business accruing to East Coast refiners from these trips is not as great as was the case with the "cruises to nowhere" so popular a few months ago.

Industrial fuel oil sales have shown a slight improvement, but gallonage in this branch of the market is still at disappointingly low levels in most instances.

Gas Oil

Gas manufacturing companies continue to draw stocks on contract in a large way, and there has been a fairly heavy movement from the refineries. The posted price for 28 plus recycled gas oil continues to range 3½ to 4 cents per gallon in tank car lots.

Spot business has picked up somewhat during the week, but heavy offerings continue to make for a sharply competitive market at principal refinery points along the coast.

Diesel Oil

Refiners note a steady market for 28-30 Diesel oil, which is quoted at $1.30 per barrel in bulk at refinery terminals. Marine interests are taking stocks against standing contracts in good volume, and spot sales are also a little above the ordinary, this latter being due to the fact that some buyers who formerly covered their requirements on term contracts are now operating in the spot market, buying the oil as needed.

Refiners in East Coast territory have been able to keep Diesel oil output within bounds, and this division of the market is not affected by price cutting as much as has been the case with a number of other refined products.

Industrial Diesel oil demand continues along routine lines.

Furnace Oil

Colder weather has made for a better demand for furnace oil at the refinery, and the market is steady, with sellers quoting 3½ cents per gallon for 32-36 gravity oil and 4½ cents per gallon for 36-40 gravity, both in tank car lots at the terminals.

Quotations for tank wagon deliveries have also held unchanged, with 36-40 selling at 7¾ to 9 cents per gallon; 32-36 at 6½ cents, and 28-32 at 6½ cents in local and nearby territory, according to seller and quantity. Minimum tank wagon deliveries at these prices are usually 150-gallon "dumps."

While domestic oil burner manufacturers are strenuously opposing the proposed import tariff on crude oil and refined products, and predict a sharp reaction in their business in the event that the tariff goes into effect, current reports are to the effect that oil burner sales are still running at exceptionally high levels, notwithstanding current adverse economic conditions in many parts of the country. Despite the mildness of the winter, the number of new oil burner installations which has gone into service during the 1931-1932 heating season is believed to be sufficiently large to insure new high furnace oil consumption records for the year.

Paraffin Wax

With British buyers temporarily withdrawn from the market, after their recent heavy purchases, export operations in the wax market subsided considerably during the past week.

Improved domestic demand, however, tended to take up the slack to some extent, and traders reported a fair tonnage put through during the week at prices unchanged from the previous week's levels.

Petrolatum

Prices have shown a steady undertone in the petrolatum market, and volume of business picked up slightly during the period under review.

Pharmaceutical and cosmetic manufacturers have come into the spot market for supplies for their spring and summer requirements in fairly good volume, and inquiries being received for petrolatum for later delivery indicate that considerable additional buying is in the offing.

Petrolatum Exports

Continued heavy export movement of lubricating oil and paraffin wax was evident locally during the week ended February 20, shipments being rushed to Great Britain in order to get the materials into the United Kingdom before the 10 per cent tariff impost became effective March 1.

The following table shows refined petroleum exports from the local port for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Feb. 20	Feb. 13	Feb. 6
Gasoline	120,000	15,000	140,000
Naphtha	5,000	21,000	650,000
Kerosene	250,000	18,000	175,000
Fuel oil	5,000	2,000	225,000
Lub. oil	2,451,000	510,000	1,135,000
Petroleum, ref'd.	705,000	320,000	715,000
	Pounds		
Petrolatum		75,000	90,000
Paraffin wax	1,225,000	2,750,000	1,380,000
Refined	35,000		112,000
Scale	500,000	680,000	125,000
Lub. grease	1,040,000	560,000	475,000

Buying of minor refined products for prompt shipment to England has tapered off, and all of the supplies British buyers wanted to land before the March 1 "deadline" have been cleared from Atlantic Coast ports. Demand from other foreign consuming countries was likewise of but limited amount during the week, the market showing quiet in all divisions.

Export Market

A cargo of 7,500 tons of 64-66 gasoline, which had been inquired for by France for March shipment during the previous week, and which appeared destined for Russia or Rumania, was closed by the American holding company of the French buyer. The cargo was variously reported as having been closed at from

4 to 4⅛ cents per gallon, but in as much as the sale was made by an American company to a foreign subsidiary, it is not considered that this low figure "makes" the market.

An inquiry for a cargo of 4,000 to 5,000 tons of 64-66 for end of March loading was in the Gulf market this week, also for France, with Russian and Rumanian competition again threatening to take the business.

Export operators were figuring on a full cargo of East Texas crude for export during the week, but up to the time of writing this business had not been closed. No additional trading in Mexican or Venezuelan crude was reported.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended February 20 totaled 1,781,000 bbls., a daily average of 254,429 bbls., compared with 1,403,000 bbls., a daily average of 200,429 bbls. for the previous week, and a daily average of 219,857 bbls. for the four weeks ended February 20. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	Bbls.
Baltimore	218,000
Boston	196,000
New York	831,000
Philadelphia	314,000
Others	222,000
Total	1,781,000
Daily average	254,429
At Gulf Coast ports—	
All ports	none
At Atlantic and Gulf Coast ports—	
Total	1,781,000
Daily average	254,429
Daily average four weeks	219,857

Distribution of total imports is as follows:

	Bbls.
Crude	1,059,000
Gasoline	68,000
Fuel oil	654,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended February 20 totaled 182,000 bbls., a daily average of 26,000 bbls., compared with 177,000 bbls., a daily average of 25,286 bbls. for the previous week and a daily average of 19,893 bbls. for the four weeks ended February 20. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	Bbls.
Baltimore	41,000
Philadelphia	141,000
Total	182,000
Daily average	26,000
At Gulf Coast ports—	
All ports	none
At Atlantic and Gulf Coast ports—	
Total	182,000
Daily average	26,000
Daily average four weeks	19,892

All of the week's receipts of California refined products consisted of gasoline.

KANSAS FIELDS

(Continued from Page 35)

117 bbls. from Siliceous lime at 3,285-95½ feet. McKnabb and others' No. 1 Hutto, Lot 10, Block 18, Reynolds College View addition to city of Winfield, Section 22-32-4, topped the Siliceous lime at 3,297 feet, drilled to 3,307 feet and made 800 bbls. Sooby and others' No. 1 Cavit, C NE SE Section 9-32-5, has been shut in for 500,000 feet of gas in sand at 610-20 feet. Whitter and others' No. 1 Cassoday, NE cor. SW Section 19-34-3, has been abandoned at 1,480 feet.

Greenwood County

McGinnis and others made location for No. 1 Beal, SE cor. SW Seciton 28-23-11. Harwood and others' No. 1 Beal, SW cor. SE Section 28-23-11, is a rig under construction. McGinnis and others made location for No. 1 Peoples, NE cor. NW NE Section 33-23-11. Empire Oil & Refining Co. and others' No. 4 Hillman, SW cor. NE NE Section 35-23-11, is spudding.

Kingman County

Skelly Oil Co. is moving in the rig for No. 1 Leisman, C SE SW Section 20-27-10w.

McPherson County

Olsen and Shell Petroleum Corp. made location for No. 1 Johnson "B", NE cor. SE Section 29-19-1w. Wolf Creek Oil Co. and Sinclair Oil & Gas Co. staked location for No. 2 Krehbiel, NW cor. Section 25-19-2w, Ritz-Canton area. Rosespring Drilling Co. made location for No. 1 Dielman, SE cor. NE SW Section 35-19-2w. Dickey Oil Co. staked location for No. 2 Decker "B", SW cor. NW SE, Section 35-19-2w. Olsen and Shell Petroleum Corp.'s No. 5 Koehn, NE cor. SW SW Section 36-19-2w, has been completed for 431,000 feet of gas after drilling to 3,440 feet and plugging back to 2,942 feet then drilling to 2,951 feet. Syndicate Oil Co. and Shell Petroleum Corp.'s No. 3 Becker, NW cor. NE SE Section 36-19-2w, topped Viola lime at 3,395 feet, drilled to total depth of 3,414 feet and made 1,086 bbls. No. 4 Becker, NW cor. SE SE Section 36-19-2w, has been completed for 1,352 bbls. in Viola lime at 3,395-3,420 feet.

Pratt County

McMurray and others made location for No. 1 Hardesty, C SW SE Section 28-27-11w.

Sedgwick County

Rosenthal and others' No. 1 Pinson, CNL SW SW Section 15-25-1e, is moving in rig. Davidson & Miller's No. 1 Houston, NW cor. SE SW NW Section 19-27-2, is an old well drilling deeper at 2,000 feet. Continental Oil Co.'s No. 1 M. Smith, NE cor. SE Section 16-25-1e, has been completed for 420 bbls. in lime at 2,613-14 feet. Derby Oil Co.'s No. 1 Eastborough, SE cor. SW NE Section 19-27-2, has been deepened from 2,961 feet to sand at 3,253-56 feet and completed for 350 bbls. Magnolia Petroleum Co.'s No. 7 Wheeler, NE cor. Section 19-27-2, made 300 bbls. in sand at 2,324-30 feet.

OKLAHOMA FIELDS

(Continued from Page 34)

3 Smith, SE cor. NE SE NW Section 15-11-3w, flowed 747 bbls. in 30 minutes through a 4½-inch choke. The 6-inch casing was landed at 6,372 feet and the total depth of the well is 6,510 feet. The gas is estimated at 20,000,000 feet a day.

Refiners Production Co.'s No. 1 Buchanan, SE cor. SW NE Section 10-11-3w, flowed 512 bbls. of oil in 30 minutes. The gas was estimated at 65,000,000 feet a day. The total depth of the well is 6,440 feet and the casing was cemented at 6,318 feet.

Total Recovery Figures

The following leases in the Oklahoma City Field have produced more than 1,000,000 bbls. of oil since their discovery to February 1,1932:

Company and lease—	Wells	Total recovery
Cromwell-Franklin, Trosper Park	33	4,250,100
Wirt Franklin, Lowery	9	2,864,500
Sinclair, Venci	16	2,360,800
Sinclair, School Land 54	16	1,952,000
Coline, Olds	10	1,781,100
Prairie, Huddleston	9	1,750,000
I. T. I. O., M. Sudik	10	1,626,500
British-American, Holmes	7	1,550,400
Coline, Warren	8	1,301,100
I. T. I. O., M. Fuszell	3	1,284,700
I. T. I. O., Button	4	1,270,500
Mid-Kansas, Fortson	8	1,215,900
Wirt Franklin, Theimer	13	1,107,600
Oils, Inc., Ross	1	1,066,900
I. T. I. O., Fee	1	1,040,600
Shell, Petty	7	1,031,700
Skelly, Hoopes	8	1,021,700

Rumors of Unitization

It is reported that attempts are being made to unitize the acreage northwest of Oklahoma City, extending to the west of Edmond. It has been reported several times during the last few months that the Carter Oil Co., Sinclair Oil & Gas Co., Gypsy Oil Co., and Tom Slick Oil Co. may attempt to unitize the territory in Sections 1, 2, 11 and 12-12-4w, immediately northwest of Oklahoma City and drill a community test.

According to another report attempts may be made to unitize the acreage around Section 19-14-3w, west of Edmond, in Oklahoma County. The acreage in that area is owned by Sinclair Oil & Gas Co., Tidal Oil Co., Prairie Oil & Gas Co., and Amerada Petroleum Corp.

The Gypsy Oil Co. has increased its block of acreage in Township 13-4w, to around 8,500 acres, with the majority of the acreage in the southern part of the township. Several attempts to unitize acreage in the township have been failures.

The Oklahoma City Field which was discovered December 4, 1928, has produced a total of 92,000,000 bbls. of oil to February 1, 1932, from a total of 870 wells. The Indian Territory Illuminating Oil Co. which discovered the field has the largest total recovery of 28,329,000 bbls. as of February 1. The Tom Slick Oil Co. is second with a total recovery of 8,500,000 bbls. and the Phillips Petroleum Co. is third with a total recovery of 7,618,000 bbls.

In Southern Fields

Southwestern Oklahoma is expected to became active with a wildcat play following a leasing and geophysical campaign. Washita County is assured of two wildcat tests. The chances of increased development work are becoming more promising, as considerable acreage is now under lease and a number of operators are still active securing new leases. At this time last year the territory was active and very little of this acreage has been turned back to the landowners. Practically no Indian land was surrendered.

J. Prince and others' No. 1 M. Dock, SW cor., Section 21-8-18w, in southern Washita County, has cleaned up a fishing job at 1,138 feet and is preparing to drill deeper. The 12½-inch casing was landed at 1,105 feet. J. Prince and others have increased the size of the block on which the test is drilling from 3,500 acres to 8,700 acres. It is reported that work on the test will be resumed around March 10. Eason Oil Co. of Enid is to furnish casing for the test.

Miley Petroleum Co.'s No. 1 Chapman, NE cor. SW, Section 23-9-17w, is a rig on the ground. It is a wildcat test which is expected to be drilled to a total depth of 6,000 feet on a 7,000-acre block. The work at the location has been shut down for the last two months to perfect the titles.

In Beckham County, the Hancock Oil Corp. has assembled a block of 8,000 acres in Township 9-22w, on which a deep test may be drilled this year. North of this block the Ramsey Petroleum Co. has a block extending to the Roger Mills County line. The Carter Oil Co. has acquired two blocks in Beckham County which were assembled during the last year and purchased from Roy Johnson and others.

In Custer County, the Miley Petroleum Co.'s No. 1 Caldwell, NE cor., Section 12-14-14w, is a location, near the Blaine County line. It is believed the work at the location will be delayed for about a month.

Wildcat developments in other southern counties indicate that the shallow horizons in Stephens and Carter Counties will continue active. William Angle has assembled a 3,500-acre block centering around Section 22-1-4w, Stephens County.

In Garvin County, G. Long's No. 1 in the NW cor. SW SE, Section 19-1-2w, is a new location.

Northern Developments

Atlantic Oil Producing Co. and others' No. 1 Harjo, NW cor. SW Section 26-14-10, Creek County, flowed 154 bbls. of oil in 24 hours from the Misener sand at 3,222-37 feet. The well made 110 bbls. the second 24 hours. It was drilled deeper to a total depth of 3,239 feet, and then swabbed 203 bbls. of oil in 24 hours. The well is the second test on a community block of 240 acres. The companies are taking a 10-day potential test of the well.

Penrod & Thompson's No. 1 S. Barnett, SE cor. Section 19-12-14, Okmulgee County, was successfully drilled deeper from the Wilcox sand to the Turkey Mountain sand, where it found 20,500,000 feet of gas a day from the sand at 3,071-72 feet. The well was originally completed in the Wilcox sand at a total depth of 2,760 feet.

A community wildcat test in Lincoln County found water in the Wilcox sand and is being plugged back to test a showing in the Hunton lime. Barnsdall Oil Co., Carter Oil Co., Pure Oil Co., Prairie Oil & Gas Co., Producers & Refiners Corp., Tom Slick Oil Co. and Coline Oil Co.'s No. 1 Taylor, C SW NW Section 17-14-5, a wildcat, found the Wilcox sand at 4,706-35 feet, where water rose 4,000 feet in the hole. The lower Wilcox sand was found at 4,744-48 feet, and the water increased to a hole full.

The Greater Seminole area was quiet during the week with some activity in the Fish Pool. The Carr City Pool is showing considerable water from the newly completed wells, some of which are being plugged back to shallower horizons.

South of the Sacred Heart Pool, in Pottawatomie County, the community well, Barnsdall Oil Co and others' No. 1 Gray, SW cor. Section 25-6-4, was drilling below 600 feet.

Oils, Inc.'s No. 1 Horn, SW cor. Section 13-6-3, in the West Asher area, was spudding.

Seminole Production

The production from the Greater Seminole area for the week ending February 26, was approximately 145,790 bbls. a day. The Seminole Field, which includes the first 12 pools listed below averaged 107,730 bbls.

Pool—	Bbls.
Little River	18,865
East Little River	2,045
Carr City	17,625
Maud	2,230
Mission	7,230
Bowlegs	12,260
Earlsboro	13,880
South Earlsboro	4,500
East Earlsboro	13,365
Seminole	11,065
East Seminole	1,155
Searight	3,510
Total	107,730
Allen	9,220
Asher	530
Wanette	3,090
Konawa	5,360
Sasakwa	1,970
St. Louis-Pearson	17,890
Grand total	145,790

Oklahoma City Production

The daily average production of the Oklahoma City Field for the week ending February 27, and the number of wells producing each day was as follows:

Date—	Bbls.	Wells
February 21	115,148	168
February 22	120,157	146
February 23	109,604	145
February 24	137,653	181
February 25	76,132	137
February 26	92,677	154
February 27	90,782	164

Carter County

Carter Oil Co.'s No. 1 Lynn, SW cor. SE SE, Section 31-1s-2w, has been completed for 176 bbls. in sand 2,073-2,141 feet.

Coal County

Rabial Oil Co.'s No. 1 Miller, SE cor. NE Section 10-2-8, is drilling deeper at 1,100 feet. Mid-Western Oil & Gas Co.'s No. 1 Hall, C SE NE Section 25-3-9, has been completed for 2,000,000 feet of gas in sand 1,090-1,102 feet.

Creek County

The Texas Company's No. 9 Weaver, SE cor. NE SE Section 13-19-8, is a machine rigging up. Holmes Oil Co. made location for No. 1 Coney, NE cor. Section 2-19-9. J. E. Wallace and others staked location for No. 1 Riverbed, SW cor. Section 7-19-9. McCurry and others' No. 1-A Reed, SE cor. NW SW Section 28-17-11 is drilling at 300 feet. J. A. Allen and others' No. 1 Robinson, NW cor. SE SE NW Section 32-17-11, is drilling at 250 feet. Magnolia Petroleum Co.'s No. 10 Nora Williams, SE cor. SW SW Section 3-16-7, is an old well drilling deeper at 2,462 feet. E Shamblin and others' No. 1 H. Wilson, SE cor. NE NE Section 21-15-8, is being deepened, now drilling at 1,325 feet. Peter Brown and others moved a machine in for No. 1 Abraham, NE cor. NW NE Section 19-14-9.

Haskell County

Mid-Western Oil & Gas Co.'s No. 1 Rabon, C SW SW Section 38-8-19, is a machine.

Lincoln County

Sovereign Oil Corp. and others' No. 1 Selacek, NE cor. SE Section 3-12-5, is a rig on the ground.

Love County

J. B. Schermerhorn and others' No. 1 Bourland, NE cor. NW SW Section 1-6s-1e, has been abandoned at 1,172 feet.

Marshall County

M. A. Neff and others' No. 2 Marshall, NE cor. SW NW SE Section 30-5s-6, is drilling at 190 feet. Edna Marie Oil Co.'s No. 1 Walker, SW cor. SE NW

Section 22-5-6, has been completed for 2,000,000 feet of gas in sands at 1,582-87 feet and 1,670-78 feet.

Muskogee County

Aggas Drilling Co.'s No. 1 D. McDaniel, SE cor. Section 33-16-15, is dry and abandoned at 1,246 feet. Mack Drilling Co.'s No. 7 D. Dichards, NE cor. SE NE Section 33-16-15, made 25 bbls. in sand at 1,197-1,246 feet.

Okfuskee County

Burke-Greis Oil Co.'s No. 1 Grayson, NE cor. NW SE Section 32-12-10, has been completed for 12,500,000 feet of gas in sand at 3,055-3,100 feet.

Oklahoma County

American Oil & Refining Co. is erecting the rig for No. 1, Block 19, Phillips-Meade Addition, SE cor. NE SE Section 34-12-3w, Oklahoma City Pool. Anderson-Prichard and Phillips Petroleum Co. made location for No. 2 Wilhoit, Block 16, Lot 10, Terrace Lawn Addition, SW cor. NW NE NE Section 10-11-3w. Phillips Petroleum Co.'s No. 1 Carney is a cellar on Block 2, Lots 35 and 36, Carney Heights Addition, NW cor. NE Section 22-11-3w. Phillips Petroleum Co. and Aladdin Oil Co.'s No. 1 Garver, Block 6, Lot 37, Carney Heights Addition, SW cor. NW NE Section 22-11-3w, is a cellar. California Operating Co.'s No. 1 Massey, SE cor. NE NW SE Section 15-11-3w, has been abandoned at 2,630 feet.

Okmulgee County

Iron Mountain Oil Co.'s No. 12 B. Aultman, CWL SE NE Section 24-13-14, has drilled to 1,300 feet and shut down. S. J. Mathews and others' No. 2 Hughes, C NE NE Section 21-16-11, has been completed for 1,000,000 feet of gas in sand 593-620 feet. J. H. Rebold's No. 1-A W. Jones, SE cor. SW SW NW Section 28-13-11, made 12 bbls. in sand at 1,840-1,905 feet, after plugging back 2 feet.

Osage County

Pueblo Petroleum Co. made location for No. 3, SE cor. NW NW Section 14-21-8.

Pawnee County

A. J. Bookout's No. 1-A Pierce, NE cor. SE SW Section 20-20-10, is rigging up.

Pottawatomie County

Gypsy Oil Co.'s No. 5 Horn, NW cor. NE NE Section 23-6-3, West Asher Pool, has been completed for 732 bbls. in sand at 3,467-89 feet, total depth 3,491 feet.

Seminole County

Empire Oil & Refining Co. made location for No. 3 Fish "B," NE cor. SW SE Section 19-7-8. The Texas Company staked location for No. 2 Eliza, SE cor. NW SE Section 19-7-8. Gypsy Oil Co.'s No. 2 L. Tiger, NE cor. SW NW Section 3-8-5, Carr City Pool, topped Wilcox sand at 4,191 feet, drilled to total depth of 4,196 feet, plugged back to Hunton lime at 3,943-3,989 feet and completed for 79 bbls. Amerada Petroleum Corp.'s No. 5 J. Tiger, NW cor. SE NW Section 3-8-5, topped Wilcox sand at 4,186 feet drilled to 4,191 feet and was completed for 559 bbls. from Wilcox sand and 80 bbls. from Hunton lime.

Stephens County

L. P. Gilbert's No. 1 Green, SE cor. SW NE Section 2-2s-8w, has been completed for 115 bbls. in sand at 1,373-87 feet. Murphy Oil Co.'s No. 4 Fobb "B," SE cor. NW SW Section 12-2s-8w, has been abandoned at 1,524 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 43)

only one in the Prairie Oil & Gas Co.'s No. 1 O'Toole, 10 miles to the northwest of Greasewood, which had any shows.

While reports continue to be circulated of plans to drill one or two wells this spring in the New Raymer-Buckingham district in northeastern Weld County this spring, no definite announcement is as yet forthcoming. This is one of the most attractive wildcat areas in northeastern Colorado and around 70,000 acres on a large structure have been leased by the California Co., the Magnolia Petroleum Co., the Continental Oil Co., W. R. Ramsey, the Ohio Oil Co., The Texas Company, and others. The district is principally in Townships 7, 8, 9 and 10n, Ranges 58 and 59w. It is expected that at least one test and possibly two will be drilled. It it probable that these will be community wells in which several companies will contribute to the cost.

E. D. Johnson, geologist, of Fort Morgan, recently made a compilation of acreage held in Morgan County alone. This shows 260,000 acres under lease, of which 150,195 is held by major companies. This compilation does not include the acreage in the New Raymer district, or in counties other than Morgan. His distribution includes the following: The Texas Company, 33,080 acres; Indian Territory Illuminating Oil Co., 31,310 acres; Magnolia Petroleum Co., 30,715 acres; Midwest Refining Co., 18,150 acres; Ohio Oil Co., 13,820 acres; Continental Oil Co., 8,680 acres; Empire Gas & Fuel Co., 4,720 acres; California Co., 2,720 acres; Phillips Petroleum Co., 2,320 acres; Prairie Oil & Gas Co., 2,080 acres; Producers & Refiners Corp., 1,600 acres; and A. L. Derby, 1,000 acres. Other companies holding blocks in Morgan and Weld Counties, in addition to those named, include the Fort Morgan Oil Co., the Colorado Associated Oil Co., the Tulsa-Fort Morgan Petroleum Co., Reiter-Foster Oil Corp., the Platte Valley Petroleum Co., Frank E. Kistler & Co., the Badger Basin Oil & Gas Co., and several independent operators.

Larimer County

Charles A. Culter and others' No. 1, SE, Section 4-4n-70, West Berthoud, is drilling at a shallow depth.

The Poudre River Oil Co.'s No. 1 Smith, NW SE NW, Section 34-8n-69, northwest of Fort Collins, is bottomed at 1,995 feet waiting for a string of 8¼-inch casing to shut off upper water and test a sand topped at 1,960 feet which has been making considerable gas for several months.

Fremont County

The Waterville Oil Co.'s No. 1 State, SE cor. NW, Section 16-18-69, Phantom Canon, which has been standing at 1,710 feet for several months since the rig was destroyed by fire, is preparing to resume. It starts in the red beds.

Adams County

The Hills Dome Lease Development Co.'s No. 1 Hills, SE cor., Section 27-3s-64, Watkins district, is preparing to resume March 1 at 3,790 feet.

Arapahoe County

The MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, has landed the 4¾-inch on bottom at 5,920 feet and is preparing to resume with a special 3-inch bit. A small show of oil and gas is reported at this depth.

Jefferson County

The Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is drilling at 4,120 feet in limey shale. The 6⅝-inch was cemented at 3,950 feet.

Rio Blanco County

The California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, is waiting after cementing the 13⅜-inch with 1,450 sacks at 3,575 feet.

Huerfano County

The Alamo Oil Co.'s No. 1 fee, Section 4-28-68, Badito-Alamo Dome, is standing at 4,115 feet with a watchman in charge. At this depth it had a show of oil and gas in the top of the Lakota, but was unable to go ahead on account of a bad hole. It is reported that the company plans to install a rotary the coming spring and try to complete the test.

Montezuma County

Colorado has a small oil field in the extreme southwestern corner of the State in Montezuma County about which mention is seldom made. It is located on Mancos Creek in the Southern Ute Indian Reservation. The majority of the wells are in Sections 10 and 11-32n-18w. Thirty wells have been drilled of which 2 are producing, 9 are oil wells shut down, 18 were abandoned and one is a water well. The production comes from the Mancos shale at approximately 350 to 375 feet and the wells average from one-half to 2 bbls. each. Seldom does the production run over 100 bbls. per month. The oil is refined on the lease and the gasoline and kerosene are sold locally. The production for 1931 was approximately 950 bbls., and total to date, 3,200 bbls.

State Leases

Colorado is now receiving some royalty from oil and gas production on state leases. In the Tow Creek Field in Routt County, production on state leases from June 1, 1928, to December 31, 1931, was 86,904 bbls. and the State's royalty was $7,600.91. No. 1 State, on the Hiawatha Dome in Moffat County, from April 1, 1930, to December 31, 1931, produced 205,464,000 feet of gas on which the State's royalty was $1,479.31. No. 2 State, on the same lease, produced 140,597,000 feet from June 1, 1931, to December 31, 1931, and the royalty was $713.51. The state lease at Berthoud in Larimer County has yielded a royalty of $1,573.91.

Moffat County

The Ohio Oil Co.'s No. 1 Bogenschultz, C SE SE, Section 9-6n-91, Craig Dome, which encountered a large flow of gas in the basal Mesa Verde at 2,781 feet, has cemented the 8¼-inch on top of the sand at this depth to shut off water from above and is preparing to drill out plug and test. No estimate has been made as to the capacity of the well, but in the Midwest Refining Co.'s test on the nearby Bell Rock Dome, first gauge of gas in this horizon showed 35,000,000 feet.

WYOMING

Weston County

The West Osage Oil Co. appears to have a good well in its No. 2, SE cor. NE, Section 15-46-64, on the west side of the Osage Field, where an important extension of the proven area took place last year. This well is an offset on the north to the Federal Oil Co.'s No. 1, which came in last November flowing 600 bbls. initially from sand at 2,074-80 feet and which has held up to 300 to 400 bbls. daily for some time. The West Osage's No. 2 topped the sand at 2,080 feet and was drilled to 2,083 feet when it began to slop over the top. It looks as if it will be as good a well as its offset. These two wells and the West Osage's No. 1, two locations to the north, all in a north-south line, are west of Beaver Creek and the farthest west of any producers in the field. It is apparent that there remains considerable territory to the west of these wells which is favorable for development and there appears to be a better sand body than farther to the east where most of the development heretofore has taken place. The West Osage's No. 2 was drilled by Strickling and Kundy, contractors, and was pronounced to be in excellent condition by representatives of the U. S. Geological Survey after completing one of the first tests for deviation from the vertical attempted in this field.

Natrona County

A party of 20 men from the East accompanied T. M. Pettigrew, of New York, president of the Petroleum Management Corp., on a two days' inspection of the Midway operations 12 miles north of Casper the past week. These men, who will assist Sidney H. Keoughan and associates in financing the development of this structure, were reported favorably impressed and authorized the management to go ahead. The Department of the Interior has authorized the drilling of another well and this will be located in the C SW SE, Section 14-35-79, a diagonal offset on the northwest to the discovery well. The discovery well is being reconditioned preliminary to going on steady production. When it first came in it made around 600 bbls. per day from the Frontier formation, but subsequently was drilled deeper and plugged back. The development will be handled by the Mutual Oil Syndicate, of which S. H. Keoughan, H. H. Hindry, a Denver attorney, and T. M. Pettigrew will be trustees. The syndicate has acquired the 75 per cent interest held by the Midwest Refining Co., the Salt Creek Producers Association and the Mountain Producers Corp. The Midwest has contracted for the purchase of the oil and will be reimbursed for its expenditures in drilling the discovery well out of half of the production. The Midway-Geary Syndicate retains its 25 per cent interest. The field is connected with the Casper refineries by a pipe line. The North Geary Dome, on which the geology was worked out last summer with core drills, will not be tested at this time as it is planned to center development on the Midway Dome.

MONTANA

Carbon County

The Ohio Oil Co. is reported to have made another contract with the Utah Oil Refining Co. for crude from its Dry Creek wells and again is shipping 400 bbls. daily to the refinery at Salt Lake City. The Carbon Oil & Gas Co. is preparing to empty its storage on the Armstrong lease preliminary to running tubing and making a production test of its No. 1 Armstrong, SW cor. NW, Section 7-7s-22, which came in last month and filled 2,000 bbls. of storage in 16 hours. The Carbon Oil & Gas Co.'s No. 1 McMinn, NW SW SW, Section 7-7s-22, one-third of a mile south of No. 1 Armstrong, is drilling with rotary after cementing the 12½-inch at 400 feet. The Ohio Oil Co.'s No. 2 Montana Industrial, C NW SE, Section 11-7s-21, is drilling below 1,182 feet, and its No. 2 Robinson, C SE SE, Section 3-7s-21, is spudding.

The Ohio Oil Co.'s No. 1 Kuchinski, NW SE NE, Section 15-7s-22, Golden Dome, east of Dry Creek, is drilling and coring at 2,538 feet in the Frontier.

Liberty County

The California Co.'s No. 1 Ross, NE SE NE, Section 3-33-6e, Utopia district, made a water shutoff with the 10-inch at 2,608 feet and is waiting for cement to harden.

Cascade County

Charles Merz and others' No. 1 Sheffelt, SE NW, Section 4-21-4e, Black Horse Lake, is drilling at 885 feet.

Glacier County

The Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE NE, Section 28-36-12w, Milk River district, is drilling at 2,910 feet.

Toole County

The Oregon Oil Syndicate's No. 1 Barthelote, SW NE SE, Section 20-36-2e, is fishing for bailer at 2,268 feet, total depth.

Pipe Line Runs

Average daily pipe line runs for the week ended February 27:

WYOMING

	Bbls.
Salt Creek	22,760
Badger Basin	50
Big Muddy	1,680
Byron-Garland	1,230
Greybull	10
Dallas-Derby	130
Dutton Creek	70
Elk Basin	630
Ferris	20
Grass Creek	2,040
Hamilton Dome	740
Hudson	380
LaBarge	940
Lance Creek	110
Oregon Basin	570
Lost Soldier	2,560
Osage	950
Pilot Butte	40
Rock River	1,680
Poison Spider	260
Teapot	20
Total Wyoming	35,930

MONTANA

Buckley-Border	640
Cat Creek	930
Dry Creek	840
Kevin-Sunburst	4,090
Lake Basin	70
Pondera	1,140
Total Montana	7,710

COLORADO

Florence	410
Fort Collins	1,030
Iles	770
Moffat	710
Orchard	370
Rangely	20
Tow Creek	270
Total Colorado	3,580

NEW MEXICO

Rattlesnake	725
Hogback	166
Table Mesa	83
Artesia	500
Cap Rock	600
Hobbs	31,385
Jal	863
Lea City	2,110
Eunice	346
Texas Pacific	152
Total New Mexico	36,924
Total Rocky Mountain area	84,144
Total previous week	83,639
Difference	505

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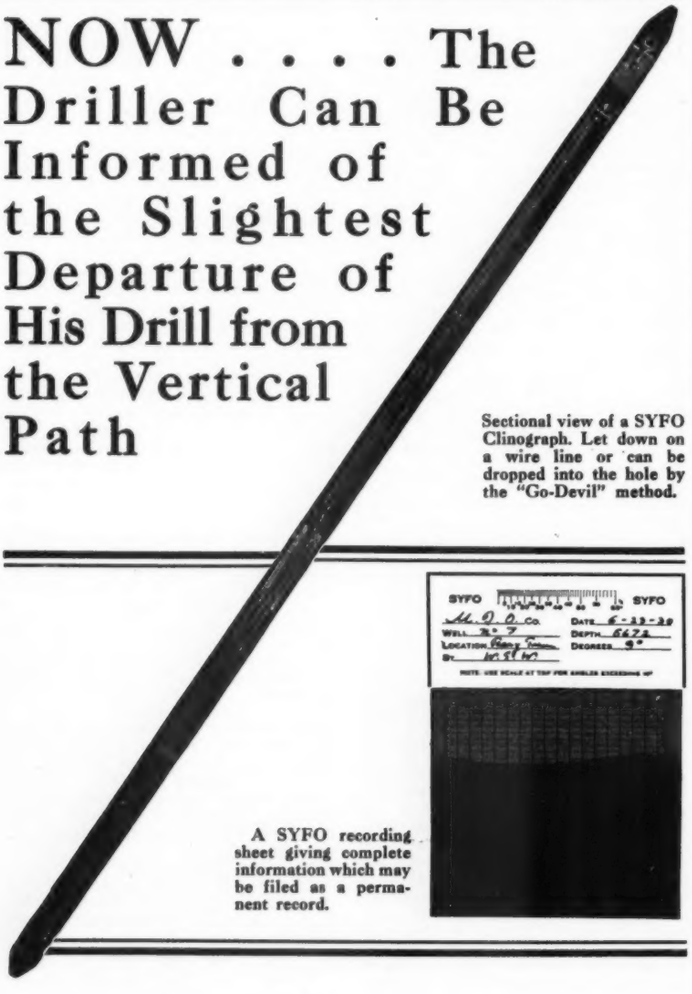

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WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 26)

4. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G. M. M.Br.&A. Sur. ..... S.D. 3,280 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.P. No. 7,247 ..... S.D. 2,152 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 1 George, 400 ft. from N and 380 ft. from E, Sec. 200, Blk. 1, B.B.B.&C. Sur..... T.D. 3,895 ft.; swedging csg.
Southern Oil Corp. of America's No. 1 Wm. Flannigan, 240 ft. from E and 165 ft. from W line of S 20 acres of SW, Sec. 20, B.B.B.&C.R.R. Sur. ..... Drlg. 2,310 ft.

GLASSCOCK COUNTY

Mann et al's No. 1 fee, 330 ft. from N and 1,980 ft. from E, Sec. 27, Blk. 34, Twp. 3s, T.&P. Sur. ..... S.D. 670 ft.

GARZA COUNTY

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Fishing for 6⅝-in. csg.; T.D. 3,320 ft.

HOWARD COUNTY

American-Maracaibo's No. 5-A Settles, 1,896 ft. from N, 1,884 ft. from W, Sec. 6, Blk. 32, T.&P. Sur. ..... Cellar.
Chalk's No. 1 fee, 330 ft. from S and E Sec. 96, Blk. 29, W.&N.W. Sur. ..... Location.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W, Sec. 14, Blk. 20, Twp. 1s, T.&P. Sur.. Spudded and S.D.
Wallace et al's No. 1 Bell, 1,960 ft. from N, 2,640 ft. from W, Sec. 12, Blk. 30-1s, T.&P. Sur. ..... Cellar.

IRION COUNTY

Apollo Oil Co.'s No. 4 Nutt, 504 ft. from N and 1,562 ft. from W of Subd. No. 6, Gonzales County School Land ..... Location.
Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W, Sec. 3,081, Blk. 28, H.&T.C. Sur. ..... Drlg. 6,350 ft.
Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Drlg. 7,200 ft.
Straughn & Adkins Bros.' No. 1 Lee, 1,980 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... S.D. 1,395 ft.

JONES COUNTY

Johnson's No. 1 Huddleston, 165 ft. from S and W of N half of N half of Sec. 39, Blk. 18, T.&P. Sur..... Rig.
Grove & Shield's No. 1 Toombs, 1,140 ft. from N and 220 ft. from E Sec. 25, Blk. 19, T.&P. Sur. ..... Location.
Young et al's No. 1 Harrell, 150 ft. from S and E of N half of Sec. 8, O.A.L. Sur. ..... Location.
Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur..... S.D. 1,005 ft.; temp. abnd.
Transcontinental Prod. Co.'s No. 1 Rust, 5,800 ft. N and 995 ft. W of SE cor. J. J. Hughes Sur. 556 ..... Cellar.

LOVING COUNTY

Wm. Little's No. 1 Hugo Freels, 1,923 ft. from NE lines and 410 ft. from NW lines of Sec. 92, W.&N.W. Sur., Blk. 1 ..... Drlg. 675 ft.
Adams et al's No. 1 Wheat, 330 ft. from SE and SW of Sec. 89, Blk. 1, W.&N.W. Sur. ..... S.D. 4,199 ft.
Eppenauer Drlg. Co.'s No. 1 Allen, 465 ft. from NE and SE, Sec. 4, Blk. 2, W.&N.W. Sur. ..... Drlg. 210 ft.
Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S. Sec. 46, Blk. 53, T.&P. Sur. ..... S. D. 810 ft.
Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... T.D. 4,265 ft.; 300 ft. oil in hole; cleaning out.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW, Sec. 79, Blk. 33, H.&T.C. Sur..... S.D. 2,500 ft.
Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W, Sec. 6, Blk. 56, Twp. 1, T.&P. Sur... T.D. 800 ft.; underreaming 10-in. csg.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur..... S.D. 3,385 ft.
Phillips Pet. Co.'s No. 3 Wheat, 330 ft. from SW and 2,310 ft. from SE, Sec. 85, Blk. 1, W.&N.W. Sur..... Drlg. 3,570 ft.
Stein & Bowers' No. 1 Jim Wheat, 1,650 ft. from NW and 1,650 ft. from NE lines of Sec. 83, W.&N.W. Sur., Blk. 1 ..... Location.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW, Sec. 66, Blk. 1, W.&N.W. Sur. ..... Cleaning out 4,335 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... S.D. 2,860 ft.

PECOS COUNTY

Anderson's No. 1 Lee Fever, 330 ft. from N and W of Sec. 78, Blk. 3, H.&G.N. Sur. ..... S. D. 2,027 ft.
Black et al's No. 1 Pecos Valley, 1,037 ft. from SE, 433 ft. from SW, Sec. 36, Blk. 3, H.&T.C. Sur. ..... S.D. 450 ft.
Cardinal Oil Co.'s No. 1 J. H. Tippett ("J"), 1,980 ft. from the S line and 990 ft. from the W line of Sec. 2, D. F. Robertson Sur. ..... S.D. 675 ft.
Corvette Oil Corp.'s No. 8 H. Monroe, 1,040 ft. from E line and 150 ft. from N line of Sec. 39, G.C.&S.F. Sur., Blk. 194 ..... Location.
Hampton et al's No. 1 Byrne, 1,980 ft. from NW and 1,500 ft. from NE Sec. 54, Blk. 10, H.&G.N. Sur. .... S.D. 325 ft.
Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur..... S.D. 1,225 ft.

PRESIDIO COUNTY

Sadler et al's No. 1 Bledsoe, 2,640 ft. from N and W Sec. 15, Blk. 354, G.C.&S.F. Sur. ..... Material.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,370 ft. from S and 1,000 ft. from E, Sec. 12, Blk. 2 ..... T.D. 4,810 ft.; drlg. by csg. at 4,360 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W, Sec. 98, Cassel's Sur. ..... S.D. 75 ft.
F. McDorman et al's No. 1 Ray Roberts et al, 2,310 ft. from S and E lines of Sec. 22, Blk. 59, P.S.L. Sur.... S.D. 105 ft.
James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 72 ..... S.D. 3,360 ft.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.... S.D. 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... S.O. 3,427-20 ft.; S.D. 3,600 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C, Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Drlg. 5,005 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,302 ft. from E of Sec. 77, Blk. LL, T. C. Sur. ..... Fishing 5,580 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... S.D. 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... S.D. 5,050 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and S.D.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... S.D. 3,900 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M-K-T Sur. ..... S.D. 2,269 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ..... S. D. 3,150 ft.; moved off tools.
Miller Bros.' No. 1 Allison & Burke, C NW, Sec. 10, Blk. 176, T.&P. Sur. ..... S.D. 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F. Sur. .. **S.D. 6,120 ft.**
Jones et al's No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... S.D. 2,545 ft.
Sides et al's No. 1 Phelps, 2,157 ft. from N and 2,482 ft. from W, Sec. 5, G. W. Hurley Sur. ..... S.D. 855 ft.

TOM GREEN COUNTY

Andrews' No. 1 Pugh, 250 ft. from N and 5,184 ft. from E, James Eldridge Sur. No. 73 ..... S.D. 453 ft.
Belding & Dutton's No. 1 Norsworthy, 1,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... S.D. 760 ft.; S.O. and gas 725 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 445 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. .. S.D. 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... S.D. 200 ft.

VAL VERDE COUNTY

Couch et al's No. 1 J. P. Yoas, 1,300 ft. from the N line and E line of Sec. 31, Blk. 1, I.&G.N. Sur. ..... S.D. 220 ft.
Independent Operators' No. 1 Whitehead, SE SE, Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... S.D. 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... S.D. 6,780 ft.

WARD COUNTY

Abell Bros.' No. 1 Sloan, 330 ft. from NW and NE, Sec. 24, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,110 ft.
Bradford & Bentley's No. 1 B. Carson, 1,650 ft. from the NE line and 990 ft. from the SE line of Sec. 26, H.&T.C. Sur., Blk. 5 ..... Rigging up.
Buck Sturm et al's No. 2 R. H. Gill, 2,310 ft. from SW line and 330 ft. from SE line, Sec. 25, Blk. B-29, P.S.L. Sur. ..... Drlg. 2,475 ft.; show oil.
Eppenauer's No. 1 Purcell, 365 ft. from SW and 1,650 ft. from SE of Sec. 17, Blk. 34, H.&T.C. Sur. ..... S.D. 2,740 ft.
Eppenauer Drlg. Co.'s No. 1 Townsend-Moore, 990 ft. from SE and 330 ft. from SW Sec. 17, Blk. 34, H.&T.C. Sur. ..... Location.
H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW, Sec. 12, Blk. 5, H.&T.C. Sur. ..... Underreaming 6-in. csg. 870 ft.
Gulf Prod. Co.'s No. 10 Hutchings, 330 ft. from N and W of 5,370 acres, Sec. 5, Blk. F, G.M.M.B.&A. Sur. .. Drlg. 310 ft.
Gulf Prod. Co.'s No. 21 O'Brien, 2,557 ft. from N, 330 ft. from E of Sec. 16, Blk. F ..... Rig.
Moran & Burkhart's No. 2 J. T. Sweatt et al, 3,810 ft. from SW, Sec. 1, J. Howe Sur. ..... S.D. 821 ft.
Moran & Miles' No. 1 Boogher, 3,603 feet from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,220 ft.
R. F. Owen's No. 1 Lee, 1,344 ft. from NW and 4,532 ft. from SW Sec. 1, J. Howe Sur. ..... Drlg. 570 ft.
Plains Prod. Co. and Simms Oil Co.'s No. 1 Benton Land Co., 440 ft. from the SE and 440 ft. from SW lines of Sec. 26, W.&N.W.R.R. Sur., Blk. 1 ..... Spudding.
Prairie Oil & Gas Co.'s No. 2 Edmonson, 330 ft. from NW and SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... S.D. 2,510 ft.; T.P. 2,420 ft.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ..... S.D. 3,602 ft.
Richardson et al's No. 7 O'Brien, 1,900 ft. from N and 330 ft. from W Sec. 5, Blk. F ..... Location.
Rixford et al's No. 1 Green, 330 ft. from NW and SW Sec. 4, Blk. 34, H.&T.C. Sur. ..... Location.
Sudderth & Carey's No. 1 J. H. Boogher et al, 150 ft. from SW and SE lines of Lot 24, Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 290 ft.
Stanolind Oil & Gas Co.'s No. 1 Cannon, 3,300 ft. from SE and 1,649 ft. from NE, Sec. 29, Blk. B-29. ..... Drlg. 2,125 ft.
T. P. Coal & Oil Co.'s No. 2 James, 330 ft. from NW and NE Sec. 5, Blk. 34 ..... Location.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ..... S.D. 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor., Sec. 2, Blk. B-5 ..... S.D. 4,640 ft.
Sid Richardson's No. 1 S. M. Halley, 330 ft. from the S line and 1,650 ft. from the E line, Sec. 25, School Blk. B-12 ..... T.D. 2,810 ft.; running csg.

EAST AND EAST CENTRAL TEXAS WILDCATS

(Continued from Page 28)

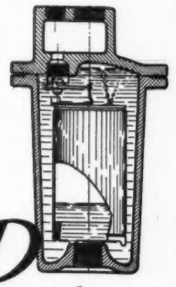
E. M. Rogers' No. 1 John Lee Winn, 1,650 ft. from E and 150 ft. from S of Orland, Orlo Wheeler Sur. .... S.D. 1,435 ft.
Worthen Pet. Co.'s No. 1 Cerf, 2½ miles NE of Ennis. .. T.D. 2,264 ft.

FRANKLIN COUNTY

Tom Harper's No. 1 fee, 150 ft. from N line and 200 ft. from E line of 116-ac. tr., W. M. Dawson Sur. .. Derrick.

GREGG COUNTY

Abernathy & Kirkpatrick's No. 1 R. M. Wood, center of Lot No. 3, R. H. Hokit Sur. ..... Testing 3,570 ft.
P. J. Alco's No. 1 F. Thomas, 166 ft. from S line and 150 ft. from W line of 10-ac. lease, C. H. Alexander Sur. ..... Spudding.
Barnsdall Oil Co.'s No. 1 Grant Benson, 330 ft. from S and E lines of 50-ac. tr., W. P. Chisum Sur. ..... Location.
Barnsdall Oil Co.'s No. 1 Adams, 330 ft. S and E of NE cor. of Shell's Slaton lease, G. W. Hooper Sur. .. Location.
Beard et al's No. 1 J. J. Fuller, 330 ft. from S and W lines of 69.7-ac. tract, M. Alexander Sur. ..... Coring 3,470 ft.
Brown et al's No. 1 Florence, 150 ft. from N and W lines of 2.58-ac. tract, Mary Van Winkle Sur. ..... Set surface csg.
Will Brown's No. 1 E. Choice, 400 ft. due east of Collins' No. 1 H. T. Elder ..... Derrick.
Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,640 ft. from S of H. A. Holdt Sur. ..... Derrick.
M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Derrick.
Byrd-Frost Oil Co.'s No. 1 Alexander and Strong, 330 ft. from S and E lines of 26-ac. tract, M. Tennison Sur. ..... Derrick.
E. L. Chapman's No. 1 J. Clayborn, 275 ft. S and 158 ft. W of NE cor. of 4-ac. lease, I. Baty Sur. ..... Rig up.
Danciger Oil & Ref. Co.'s No. 1 S. Ball, located on a 2-ac. tract, Mary Van Winkle Sur. ..... Derrick.
Degener & Co., Inc.'s No. 1 Savannah Belle, located on 2-ac. tract, Mary Van Winkle Sur. ..... Moving in rig.
Demotte et al's No. 1 T. L. Bray, center of Blk. No. 8, H. R. Hokit Sur. ..... Rigging up.
Dodd and Markey's No. 1 J. F. Holt, 615 ft. E and 707 ft. N of SW cor. of 200-ac. tract, H. Edwards Sur. .. Derrick.
W. L. Duninger's No. 1 C. C. Stoen, 350 ft. from S and E lines of 59-ac. tract, J. Baty Sur. ..... Derrick.
East Texas Refining Co.'s No. 1 Tom Christian, center of lease, G. W. Hooper Sur. ..... Testing 3,644 ft.
Empire Gas & Fuel Oil Co.'s No. 1 V. L. Taylor, 330 ft. from N line and 352 ft. from W line of 40.85-ac. lease, M. Tennison Sur. ..... Drlg. 1,350 ft.
Faith Oil Co.'s No. 1 Walters, 246 ft. E of W line and 145 ft. N of S line and SW cor. of survey, B. W. Witcher Sur. ..... Coring 3,025 ft.
Ralph Fenton's No. 1 J. H. Alexander, center of W 5 acres of N 10 acres of 50-ac. tract, D. Sanches Sur. ..... Derrick.



Positive venting

prevents air-binding in Armstrong Traps

THE simple, positive method of removing air from steam lines and steam heated units described at the left has been daily demonstrating its effectiveness for more than 20 years. Many individual users testify to the saving of thousands of dollars in fuel cost and the earning of other thousands through improved efficiency of process units.

The newly announced line of Armstrong traps embodies this time-tested principle. Like every other feature of these pioneer inverted bucket traps, the system of air elimination was subjected to every possible test of service. It has been so eminently successful that it is embodied without change in the newer and better Armstrong traps.

You can test this new model in any size and for any pressure on the same terms as in the past—as many as you need free and without obligation for a 90-day test. Why not see what this non-airbinding trap will do on your hardest service?

Bulletin on the new line of Armstrong traps will be sent on request.

The elimination of air (or other incondensible gas) from the inverted bucket of an Armstrong trap is accomplished very simply. As air enters the trap it immediately rises to the top of the inverted bucket and then on through a small vent hole provided for that purpose to the top of the trap body. Since the trap discharges at the top, this air (or gas) obviously passes out ahead of the water, thereby being completely removed from the system.

Because air cannot collect in the Armstrong trap and back up in the inlet pipe, air-binding—as the condition is called when condensate cannot get by the air to reach the trap—is prevented.

Any small amount of steam which escapes through the air vent is quickly condensed in the surrounding water and makes up for part of the small radiation loss from the trap itself.

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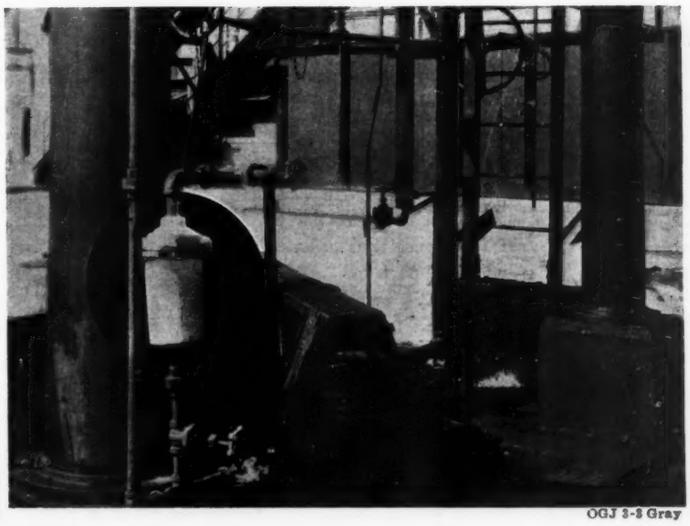
Stocks in all principal cities



OGJ 3-3 Gray

B. F. Findley's No. 1 Vine Lodge, center of 1-ac. lease and tract, J. W. Bradshaw Sur. ....Derrick.
A. B. Gippert et al's No. 1 L. Bailey et al, center of 6⅝-ac. lease, James Norris Sur. ....Derrick.
Glasscock Bros.' No. 1 E. Bade, 157 ft. from S line and 409 ft. from W line of lease, G. W. Hooper Sur. ....Derrick.
Lewis Godlin's No. 1 E. L. Walker, 330 ft. N of road, 330 ft. from E line of 80.2-ac. tract, M. Dillard Sur.. Derrick.
Gulf Production Co.'s No. 1 A. King, 120 ft. E and 330 ft. N of SE cor. of church, John Moffit Sur.... Location.
Gulf Production Co.'s No. 1 R. H. Still, north offset to Turnbow's No. 2 Elder, John Wilkerson Sur. .....Drlg. 2,145 ft.
Gulf Production Co.'s No. 1 E. L. Walker, 810 ft. N and 370 ft. W of SE cor. of lease, John Tate Sur.....Moving in.
Hastings et al's No. 1 Wallace, due SE offset to Victory Smith's No. 1 Knowles, M. Tennison Sur. ....Rig up.
Harry Hamberry's No. 1 W. E. Foshee, center of 2.56-ac. tract, H. R. Holit Sur. ....Testing 3,687 ft.
J. F. Heard's No. 1 fee, 200 ft. SW of Pace's No. 1 Elder, Mary Van Winkle Sur. ....Moving in material.
D. M. Hester's No. 1 Crews, 299 ft. W. and 166 ft. S of SE cor. of William W. Friars Sur. ....Drlg. 1,700 ft.
D. L. Hoffman's No. 1 B. F. Phillips, 330 ft. from E line and center of N and S lines of 16.5-ac. tract, D. Ferguson Sur. ....T.D. 2,135 ft.
Humble Oil & Refining Co.'s No. 1 J. H. Sheppard, 330 ft. from S and W lines of lease, T. Allen Sur. ....Derrick.
Imperator Oil Co.'s No. 1 Geo. Ritchie, 120 ft. N and 15 ft. W of Monzell and Currie's No. 1 Church, Blk. No. 4, M. Dillard Sur. ....Waiting on cmt. to set 3,580 ft.
Jackson and Bradstreet's No. 1 M. Young, center 2-ac. tract, J. R. Crosby Sur. ....S.D. 200 ft.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur.....S.D. 700 ft.
Landes et al's No. 1 M. B. Hughey, Blk. No. 118, Kilgore Townsite, Mary Van Winkle Sur. ....Rig up.
Lucy Petroleum Co.'s No. 1 B. C. Christian, 330 ft. from W line and center of N and S lines of 8-ac. lease, G. W. Hooper Sur. ....Location.
McBride's No. 1 F. Elder, 205 ft. N and 320 ft. W of SE cor. of 26-ac. lease, John Wilkerson Sur. ....Moving in material.
National Oil Co.'s No. 1 L. Martin, 330 ft. from N and W lines of 20-ac. lease, W. P. Chisum Sur. ....Derrick.
Newman et al's No. 1 A. V. Bacle, 426 ft. S and 250 ft. W of NW cor. of Barnsdall's McGrede lease, G. W. Hooper Sur. ....Location.
J. D. Patty et al's No. 1 J. C. McCormick, 207 ft. SE at right angles to Gladewater-Tyler road and 540 ft. SW of Abernathy and Kirkpatrick's No. 1 Gregston, M. Dillard Sur. ....T.D. 100 ft.
Tom C. Patten's No. 1 Geo. Walter, center of 1-ac. tract, and 396 ft. from W line of lease, Mary Van Winkle Sur. ....Set surface csg.
E. A. Payne et al's No. 1 R. M. Woods, 20 ft. from S line and 31 ft. from W line of 2.13-ac. lease, H. R. Holit Sur. ....Location.
Peterson and Merritt's No. 1 Hem, center of 1-ac. tract of SW cor. of Meridian's Lee lease, L. J. Rigsby Sur. ....Derrick.
Pilot Oil Co.'s No. 1 H. Smith, center of 3.67-ac. lease, William Robinson Sur. ....Rig up.
Pilot Oil Co.'s No. 1 G. S. Maddox, center of 8 8-ac. of W 15 acres of 55-ac. tract, D. Sanches Sur. ....T.D. 3,650 ft.
Rajo Oil Co.'s No. 1 Barrett, 356 ft. from S line and 330 ft. from W line of Shell's 80-ac. lease, Witcher Sur.. S.D. 2,800 ft.
J. C. Reese et al's No. 1 Mrs. B. Mosley, 135 ft. from NE line and 105 ft. from SE line of Blk. No. 2, H. R. Holit Sur. ....Derrick.
Reeves et al's No. 1 W. L. Hestland, center of five-eighths-acre tract, midway from Lampton Church and Sarson's No. 1 Hall, D. Sanches Sur. ....Derrick.
C. B. Robinson et al's No. 1 L. Rodden, 330 ft. W and 232 ft. S of NW cor. of The Texas Company's Woods lease, M. Dillard Sur. ....Rig up.
Roeser & Pendleton's No. 1 E. Nicholson, 330 ft. from S line and 150 ft. from W line of lease, Marshall Mann Sur. ....Drlg. 2,650 ft.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line and 6.66-ac. lease, C. H. Alexander Sur. ....Derrick.
R. J. S. Germain's No. 1 L. Martin, 843 ft. S and 330 ft. W of NE cor. of 22-ac. lease, T. Johnson Sur. ..Drlg. 2,940 ft.
Shell Pet. Corp.'s No. 1 B. F. Laird, N offset to Robertson's No. 1 Elder, John Wilkerson Sur. ....Drlg. 2,850 ft.
Shell Pet. Corp.'s No. 1 S. C. Fishborn, 330 ft. from N and E lines of 100-ac. lease, F. W. Johnson Sur.....Location.
Shell Petroleum Corp.'s No. 1 M. J. Register, 370 ft. from N line and center of E and W lines of 50-ac. tract, D. Dainwood Sur. ....Rig up.
E. L. Smith's No. 1 E. E. Anderson, 330 ft. from S line and center of E and W lines of 19-ac. tract, G. W. Hooper Sur. ....Rig up.
V. C. Smith's No. 1 M. B. Hughey, center of Blk. No. 123, Mary Van Winkle Sur. ....Rig up.
Victor C. Smith's No. 1 Knowles, center of Blk. 134, Mary Van Winkle Sur. ....Derrick.
Stanolind Oil & Gas Co. and Simms Oil Co.'s No. 1 Akin, 330 ft. from S and E lines of lease, W. H. Castleberry Sur. ....Derrick.
Sun Oil Co.'s No. 1 G. Reeves, 1,073 ft. from S line and 338 ft. from W line of lease, James Hay Sur. .....Moving in.
Thompson's No. 1 Cole, E offset to Petroleum Finance's No. 2 Lacy, M. T. Cole Sur. ....Spudded.
M. E. Trapp et al's No. 1 A. N. Neeley, center of 1.75-ac. tract out of Lion Oil & Ref. Co.'s J. R. Williams lease, P. McAnnally Sur. ....Drlg. 3,160 ft.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ....Rigging up.
Waggoner and McCowneil's No. 1 A. J. Green, 25 ft. from NW cor. of Blk. No. 81, M. Dillard Sur. .....Derrick.
Welch and Sanders' No. 1 D. Barnett, 850 ft. from N line and 1,050 ft. from E line of survey, T. Johnson Sur. ....Drlg. 3,107 ft.
Wells and Gann's No. 1 Hawkins, center of 1½-ac. tract and 350 ft. due south of Church Lot No. 1, W. P. Chisum Sur. ....Drlg. 3,617 ft.
Wiseman et al's No. 1 C. Jones, center of 45-ac. tract, G. W. Hooper Sur. ....Derrick.
H. E. Wrenn's No. 1 A. A. King, 150 ft. from S and E lines of 79-ac. lease, W. P. Chisum Sur. ....Location.
Yount Lee Oil Co.'s No. 2 I. Benson, 200 ft. from N line and 330 ft. from E line of "B" lease, D. Sanches Sur. ....Waiting on cmt. to set 3,634 ft.

HILL COUNTY

Sherman-Houseman's No. 1 J. F. Griffith, in Samuel Waddell Sur. ....Fishing 3,256 ft.

HOPKINS COUNTY

E. L. Chapman's No. 1 J. D. Jumper, 175 ft. from N line, 285 ft. from W line of lease, Jas. Webb Sur.. S.D. 230 ft.
Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ....S.D. 540 ft.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-ac. tract in John Shears Sur. ....T.D. 2,364 ft.
C. T. McManus' No. 1 Harron, 300 ft. out of NE cor. of 327-ac. tract, J. P. Procella Sur. ....Spudded and S D. 37 ft.
Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ....Drlg. 1,805 ft.

HUNT COUNTY

Branson et al's No. 1 Gray ....Location.
Russell et al's No. 1 Brooks and Quattlebaum ....S.D. 1,455 ft.

KAUFMAN COUNTY

Standy Darnell et al's No. 1 Sally Pannill ....T.D. 1,500 ft.

LAMAR COUNTY

G. W. Davy et al's No. 1 McGustion, 450 ft. from S line, 450 ft. from W. line of farm and survey, Galet Wood Sur. ....S.D. 2,880 ft.
Doyle and Jondeau's No. 1 Martin, 990 ft. from N line and 330 ft. from E line of tract, Joseph Deck Sur. ....Derrick.
Doyle and Jondeau's No. 1 Horn, 226 ft. from S line and 608 ft. from E line of lease, R. P. Mayor Sur. ....Location.
Optometrist Oil Club's No. 1 J. M. McFadden, 450 ft. from S and W lines of McFadden E 25-ac. tract, J. Deck Sur. ....S.D. 2,096 ft.

LEON COUNTY

Salzer Drlg. Co.'s No. 1 Dr. J. M. Blair, 1,010 ft. from N line, 1,986 ft. from W line, Sec. 19, Blk. E, Lucia Hibbard Sur. ....Derrick on ground.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur...Derrick.

NACOGDOCHES COUNTY

Adams et al's No. 1 Fuller Brothers, located in a 269-ac. tract, Jose Flores Sur. ....Location.
Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ....S.D. 3,430 ft.
Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ....S.D. 3,920 ft.
Scully & Harwell's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ....S.D. 3,808 ft.
Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Horrera Sur. ....S.D. 265 ft.
Creighton Drlg. Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Y. Barbo Sur. ....S.D. 3,226 ft.

POLK COUNTY

Humble Oil & Refining Co.'s No. 2-A West Texas Lumber Co., 1,902 ft. S and 70 deg. W along property line from N cor. of survey, thence 100 ft. SW of right of way, M. Chavence Sur. ....Drlg. 590 ft.
Sunshine Oil Co.'s No. 1 Brawley, 150 ft. from S line and 250 ft. from E line of W 100 acres of lease, F. Johnson Sur. ....Derrick.

RAINS COUNTY

C. H. Bayliss' No. 1 Ownby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ....S.D. 4,036 ft.

RED RIVER COUNTY

Gibbs et al's No. 1 Mace (old well being drilled deeper), 1,200 varas from S line, 1,500 varas from E line of survey, Wm. Cullam Sur. ....S.D. 3,520 ft.
Hoffman and Henson's No. 1 H. H. Lennox, 2,790 ft. W. and 300 ft. S of most easterly NE cor. of survey, J. E. Edmondson Sur. ....S.D. 60 ft.
Harris & Joiner's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, Wm. Humphreys Sur. ....S.D. 1,940 ft.
Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ....S.D. 2,530 ft.
L. G. Priest's No. 1 J. M. Stiles, 900 varas S and 500 varas E most northerly NE cor. of Jones Bankston Sur. in the Levi Dean Sur. ....S.D. 1,770 ft.

ROCKWALL COUNTY

Bucanner Oil Co.'s No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ....Set 10-in. csg. 120 ft.

RUSK COUNTY

Brooks Petroleum Co.'s No. 1 J. M. Mayfield, 330 ft. from N line and 150 ft. from W line of 22-ac. lease, D. Clark Sur. ....Derrick.
Butler and Calhoun's No. 1 C. C. Lowe, 225 ft. from N line and 200 ft. from E line of 85-ac. lease, W. G. Tutt Sur. ....Bldg. derrick.
Byrd-Frost's No. 1 Buckner, J. E. Peyton Sur. ....S.D. 2,981 ft.
George Demontrand's No. 1 L. J. Pinkston, 330 ft. from S and E line of 22.4-ac. lease out of 74.2-ac. tract, M. J. Pru Sur. ....Waiting on cmt. to set 3,597 ft.
Cordova Union Oil & Gas Co.'s No. 1 C. O. Christian, 330 ft. from S and E lines of 40-ac. lease, W. A. Elliott Sur. ....Derrick.
Everts Drilling Co.'s No. 1 Knights and Tabor, 2,700 ft. from N line and 75 ft. from E line of survey, Henry Hobson Sur. ....Drlg. 2,900 ft.
C. A. Everts' No. 1 Cole, 210 ft. from N line and 330 ft. from E line of 50-ac. lease, D. Shaw Sur. ..Derrick.
E. E. Fogelson's No. 1 D. Wadley, center of 15-ac. tract, D. Clark Sur. ....Location.
P. T. Fullwood's No. 1 W. N. Brightwell, 275 ft. E of Horse Shoe Syndicate's No. 1 Brightwell, R. E. Winn Sur. ....Drlg. 2,160 ft.
Great Eastern Oil Co.'s No. 1 C. O. Christian, 150 ft. from N line and 230 ft. from E line of lease, J. S. Whiteman Sur. ....Derrick.
Gulf Production Co.'s No. 1 W. O. Alford, 330 ft. from E line and 330 ft. from SW line of 140-ac. tract, M. Hussner Sur. ....Drlg. 1,439 ft.
Hale and Hatchfield's No. 1 C. J. Goforth, 625 ft. from S line and 450 ft. from W line of 13.4-ac. tract, M. J. Pru Sur. ....Rig up and S.D.
Harris and Russell's No. 1 T. W. Harris, 330 ft. from S line and 660 ft. from W line of most southerly SW cor. of 160-ac. tract, 3 miles SW of Henderson, W. G. Davis Sur. ....Derrick.
Hathaway et al's No. 1 Gray, J. M. McLain Sur. ....Coring 3,210 ft.
H. E. Hiden's No. 1 Varney, 100 ft. from N line, 125 ft. from E line of road, W. G. Tutt Sur. ....Derrick.
Holland et al's No. 1 S. E. Brox, 330 ft. from N line and 250 ft. from W line of 20-ac. lease, Thomas Grey Sur. ....Derrick.
Howell's No. 1 Irion and Motley, 200 ft. from N line, 1,270 ft. from W line of survey, J. Lindley Sur..... S.D. 2,860 ft.
Humble Oil & Refining Co.'s No. 1 T. Barton, 150 ft. S and 330 ft. E from NW cor. of 50.5-ac. lease, Thomas Grace Sur. ....Waiting on rig.
Humble Oil & Refining Co.'s No. 1 W. D. Peterson, 330 ft. from N and W lines of 100-ac. lease and tract, J. Lewis Sur. ....Derrick.
T. F. Hunter's No. 1 J. Johnson, 330 ft. from E line and 171 ft. from N line of 13-ac. lease, H. B. Dance Sur. ....Preparing to spud.
LaSalle-Davenport and Bledsoe's No. 1 Church, 175 ft. S and 175 ft. E of SE cor. of Sun-Schuler joint lease, J. B. DeCadena Sur. ....Moving in materis .
Moss and Urschel's No. 1 H. L. Griffin, 200 ft. from N line and 150 ft. from W line of 20-ac. lease, Juan Ximenes Sur. ....T.D. 3,697 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 George W. Moore, 425 ft. from N line and 330 ft. from S line and 1,105 ft. from E line of 85-ac. tract, W. J. Roan Sur. ....Derrick.

Mid-Kansas Oil & Gas Co.'s No. 1 H. C. Burton, 1,375 ft. from S line and 330 ft. from E line of 59.5-ac. lease, W. D. Porter Sur. ..... Waiting on cmt. to set 217 ft.
Mrs. J. A. McIntyre's No. 1 G. A. Dickerson, 330 ft. from N and W lines of 55-ac. lease, T. J. Martin Sur. ..... Derrick.
Geo. L. Pace's No. 1 E. B. Alford, center of 5-ac. lease, T. J. Moore Sur. ..... Drlg. 2,710 ft.
Pace Petroleum Co.'s No. 1 Wells, W offset to East Texas, W. P. Chisum Sur. ..... Derrick.
Pansy Oil Co.'s No. 1 E. B. Alford, center of Lot No. 35, T. J. Moore Sur. ..... Derrick.
J. T. Reese's No. 1 Marshall Clay, 330 ft. from N and W line of 65-ac. lease, Juan Ximenes Sur. ..... Drlg. 2,693 ft.
Ross Seward's No. 1 Burton, J. J. Y'Barbo Sur. ..... S.D. 3,077 ft.
R. E. L. Silvey's No. 1 P. G. Warren, 155 ft. from S line and 96 ft. from E line of 44-ac. tract, John Womack Sur. ..... Derrick.
Jay Simmons' No. 1 D. C. Joyner, 2,050 ft. from S line and 300 ft. from W line of 74.11-ac. tract, F. Cordova Sur. ..... Derrick.
Skelly et al's No. 1 I.&G.N., 1,230 ft. from E line and 660 ft. from S line of survey, J. S. Carrithers Sur. .. Waiting on cmt. to set 141 ft.
Stanolind Oil & Gas Co. and Pure Oil Co.'s No. 1 W. H. Siler, 330 ft. from N and W lines of 231.8-ac. tract, T. M. White Sur. ..... Preparing to spud.
Weaver-Crim Corp.'s No. 1 M. E. Peterson, 330 ft. from S line and center of E and W line of lease, W. P. Chisum Sur. ..... Moving in.
Weaver-Crim's No. 1 F. Bean, 175 ft. from NW line and 212 ft. from S line of 16-ac. lease, Mary Cogswell Sur. ..... Derrick.
G. C. Wood's No. 1 J. B. Irwin, 154 ft. from N line and 108 ft. from W line of 35.41-ac. lease, J. Lindley Sur. ..... Rig up.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ..... Rigging up.
Paulett et al's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... S.D. 1,765 ft.

SAN AUGUSTINE COUNTY

A. H. Jones and Tennant's No. 1 A. P. Davis ..... T.D. 2,472 ft.
Smith and Baker's No. 1 Pickering Lbr. Co., 6 miles N of San Augustine, E. Quick Sur. ..... Derrick.

SMITH COUNTY

Acme Oil Co.'s No. 1 Horton, 330 ft. from N and W lines of tract, Mar Sewell Sur. ..... S.D. 1,700 ft.
Hasmussen et al's No. 1 S. S. Cooke, 723 ft. E and 554 ft. S of SW cor. of Mayfield 99-ac. tract, Juan Vargus Sur. ..... Derrick.
J. E. Lucas' No. 1 L. S. Sartin, 214 ft. from S line and 330 ft. from E line of 10-ac. lease and 76-ac. tract, James Jordan Sur. ..... Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ..... Drlg. 3,603 ft.
Joiner et al's No. 1 Clayton Brown, 1,300 ft. from E and 400 ft. from most northerly S line of V. Evans Sur. .. S.D. 2,250 ft.

UPSHUR COUNTY

L. G. Bradstreet et al's No. 1 O. M. Victory, 330 ft. from N and E lines of 10-ac. lease, E. A. J. Evans Sur. ..... Location.
Clarston et al's No. 1 Eva O'Byrne, 250 ft. from N line and 200 ft. from E line of E 17 acres of 32.17-ac. tract, S. Harwell Sur. ..... Moving in.
E. & D. Oil Co.'s No. 1 Thomas Wells, 443 ft. W and 250 ft. S of SW cor. of Humble's C. T. Shelton lease, G. W. Hooper Sur. ..... Location.
Falvey et al's No. 1 S. D. Rodden, 227 ft. from N line and 330 ft. from E line of 20-ac. lease, M. Mann Sur. ..... Waiting on cmt. to set 3,745 ft.
Eslick et al's No. 1 H. F. Whitehurst, 330 ft. out of SW cor. of 5.80 acres of W 40 acres of Whitehurst 100-ac. tract ..... S.D. 2,410 ft.
J. C. McFarland et al's No. 1 Willie Starr, center of S 40 acres of Starr 96-ac. tract, Charles Cooper Sur. ..... Rig up.
Saturn Oil Co.'s No. 1 W. F. Smith, 330 ft. from E line and center of N and S lines of S 25 acres of W 50 acres of 100-ac. tract, J. Pineda Sur. ..... Waiting on cmt. to set 3,658 ft.
Jackson and Bradstreet's No. 1 Victory, center of 25-ac. lease, E. A. J. Evans Sur. ..... Testing 3,629 ft.
L. E. Trout et al's No. 1 O. M. Victory, 330 ft. from S and E lines of 60-ac. lease, E. A. J. Evans Sur. ... Derrick.
Wolf's No. 1 Cook, center of 115-ac. tract in Jacob Walker Sur., 5 miles W of Rosewood ..... S.D. 1,100 ft.
Wood and Nelson's No. 1 H. S. Coslett, 500 ft. N and W of SE cor. of Coslett 2.48-ac. tract, B. F. Howard Sur. ..... S.D. 2,960 ft.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. DeCadena Sur. ..... S.D. 2,104 ft.
Humble Oil & Refining Co.'s No. 1 J. F. McPherson, 308 ft. E of W line and 200 ft. N of S line of lease, William Daniel Sur. ..... Location.
Kelly O. & G. Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... S.D. 2,300 ft.
Pure Oil Co.'s No. 3 J. H. Leonard, 1,230 ft. from N line and 200 ft. from W of E line of lease, Mund Gross Sur. ..... Location.
Pure Oil Co.'s No. 9 A. R. Tunnell, 644 ft. N of S line and 250 ft. W of E line of lease, John Walling Sur. ..... Location.
Pure Oil Co.'s No. 10 F. B. Smith, 300 ft. E of well No. 9 and 150 ft. N of S line, John Walling Sur. .... Location.
Pure Oil Co.'s No. 2 B. W. Russell, 150 ft. W and 150 ft. S of NE cor. of 81.5-ac. tract, David Rose Sur. ..... Location.
Priest et al's No. 1 B. G. Beckham, 150 ft. from S line, 33 ft. from W line of 100-ac. tract, A. S. Johnson Sur.. Drlg. 5,628 ft.
Pure Oil Co.'s No. 2 Mrs. C. White, 250 ft. E of W line, 250 ft. S of N line, John Walling Sur. ..... Derrick.
Pure Oil Co.'s No. 1-T V. T. Davis, 400 ft. N of N line of Tunnell No. 8 lease, 480 ft. W of E line of survey, Nacogdoches County School Land Sur. ..... Drlg. 7,218 ft.
Pure Oil Co.'s No. 1 E. Morris 597 ft. N of S line and 250 ft. E of W line of lease, John Walling Sur. ..... Swabbing 2,936 ft.
Pure Oil Co.'s No. 5 Mary P. Neills et al, 200 ft. N of S line and 225 ft. W of E line of 100-ac. lease, James Ross Sur. ..... Drlg. 2,880 ft.
Pure Oil Co.'s No. 3, 225 ft. S of N line and 225 ft. W of E line, J. Stephenson Sur. ..... Derrick.
Pure Oil Co.'s No. 2 A. R. Humphreys, 200 ft. S of N line and 225 ft. E of W line of lease, A. McPhail Sur. ..... Making drill stem test 2,989 ft.
Thomasson, Inc.'s No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ..... S.D. 3,200 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... S.D. 2,850 ft.

WOOD COUNTY

Talko Oil Co.'s No. 1 G. T. Ross, B. L. Smith Sur. ..... S. D. 1,550 ft.
Wood County Dev. Co.'s No. 1 Davis, approximately 180 ft. from S line of 160-ac. tract and 2½ miles S of Kantes in Sarah McDonald Sur. ..... Moving in rig.
Yankee Oil Co.'s No. 1 Davis, 330 ft. from S of NW cor. of M. Ryan, Jr., Sur. ..... Drlg. 4,300 ft.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 39)

Sun Oil Co.'s No. 27 Bender, W. B. Adams Sur., 250 ft. W of No. 26 in line with No. 25 ..... Drlg. shale and rock 3,864 ft.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur. ..... Drlg. shale 6,040 ft.
The Texas Company's No. 3 Polk, T. J. Notgrass Sur., 500 ft. NE of No. 2 Polk ..... Clay 100 ft.; cmtd. 15½-in. csg. 96 ft.
The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2 .... Cmtd. 10-in. csg. on bottom 1,167 ft.

HULL—LIBERTY COUNTY

Eclipse Oil Co.'s No. 1 Barrow, Jesse DeVore Sur., 50 ft. from N line and 31 ft. from E and W lines 37-acre tract ..... No report.
Republic Prod. Co.'s No. 145 Dolbear, Jesse DeVore Sur., 200 ft. SE of No. 85 and 200 ft. N of No. 61 ..... No report.

PIERCE JUNCTION—HARRIS COUNTY

Anderson & Plummer's No. 4 Whitehead (W.O.) ..... T.D. 4,521 ft.; sidetracking in rock 3,425 ft.
Gulf Prod. Co.'s No. 9 Cain, Jas. Hamilton Sur. No. 98, 150 ft. N of No. 20 Taylor and 290 ft. E of W line of Cain lease ..... Drlg. gumbo 2,925 ft.
Humble Oil & Ref. Co.'s No. 1 Hooks (D.D.), James Hamilton Sur. No. 52, 904 ft. N of SW cor. along W line of lease and 396 ft. E at right angles ..... Cap rock 4,255 ft.; to plug back to 4,005 ft.
Pure Oil Co.-Moody Receiver's No. 3 Herman, Jas. Kopman Sur., 200 ft. due W of C of E line of 25-acre tract ..... Tentative location.
Rio Bravo Oil Co.'s No. 21-A Settegast (D.D.), J. Kopman Sur., 400 ft. S and 200 ft. E of NE cor. "A" lease ..... Drlg. sandy shale 4,785 ft.
Rio Bravo Oil Co.'s No. 23-A Settegast, Jos. Kopman Sur. No. 44, 1,375 ft. S and 200 ft. W of NE cor. "A" lease ..... Drlg. gumbo and lime 3,371 ft.

RABBS RIDGE—FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 3 George, John Rabb Sur., 1,000 ft. due E of No. 2 ..... Drlg. shale and lime 4,156 ft.
Cullen & West and Gulf Prod. Co.'s No. 1-B Lockwood & Sharp, John Rabb Sur., 300 ft. N and 300 ft. W of NW cor. of George tract ..... Abnd. 4,925 ft.
Gulf Prod. Co.'s No. 1 T. R. Booth, Samuel Kennedy Sur., 475 ft. N of S line of Booth 475-acre tract, due N offset No. 1 Booth-Meyers ..... Drlg. hard sand and boulders 865 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 25 Cade, N. Fitzsimmons Sur., 100 ft. due W of No. 23 ..... Drlg. hard sand 5,405 ft.
Yount Lee Oil Co.'s No. 26 Cade, N. Fitzsimmons Sur., 600 ft. S of No. 24 ..... Drlg. 500 ft.
Yount Lee Oil Co.'s No. 27 Cade, N. Fitzsimmons Sur., 600 ft. N of No. 21 in line with Nos. 22 and 23 ..... Location.
Yount Lee Oil Co.'s No. 1 Broussard & Orme, 300 ft. E of N cor. of N. Fitzsimmons Sur., in Martin Dunman Sur. ..... Drlg. shale and lime 1,815 ft.

DAMON MOUND—BRAZORIA COUNTY

Intercoastal Oil Co.'s No. 6 Wisdom (D.D.), A. Darst Sur., Blk. 51, 2,550 ft. from NE line and 1,150 ft. from NW line of 640-acre tract ..... Junked and abandoned 3,609 ft.
Intercoastal Oil Co.'s No. 9 Wisdom, S 45 deg. 312 ft. from NE cor. Lot C, Blk. 62, A. Darst Sur., and thence S 45 deg. 325 ft. in Lot A ..... Location.
The Texas Company's No. 2 Cave, 165 ft. NE and 55 ft. N. 45 deg. W from S cor. Lot B, Blk. 73, Wisdom Subd., A. Darst Sur. ..... Drlg. packed sand with streaks of shale 2,859 ft.

BLUE RIDGE—FORT BEND COUNTY

Coronado Oil Co.'s No. 2 Blakely (D.D.), E. Drew Sur., Lot 8 ..... Deepened from 4,397 ft. to 4,554 ft.; comp. flowing 1,500 bbls. daily.
Gulf Prod. Co.'s No. 19 Luscher, Thos. Habermacher Sur., 1,650 ft. from N line and 550 ft. from E line of 490-acre tract ..... Rigging up.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 32 Moore, Jas. Frazier Sur., N of No. 20 ..... Derrick.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Co.'s No. 4 Davis (D.D.), Kokernot Sur. ..... T.D. 4,043 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 129-A "B" ..... T.D. 570 ft.; to set screen 510-65 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 14 Mayes, E. H. R. Wallis Sur., 650 ft. due E of No. 11 in line with No. 9 ..... Sand, shale and shell 2,728-33 ft.; to make drill stem test.

MARKHAM—MATAGORDA COUNTY

Deering & Newman's No. 1 Meyers (W.O.), Wm. Hadden Sur., 100 ft. E of C of W line ..... T.D. 4,788 ft.; sidetracked to 3,690 ft.; preparing to resume drilling.
L. P. Smith et al's No. 1 Hudson, 750 ft. out of SE cor. Blk. 15, Henry Parker Sur. ..... Tested salt water 3,544 ft.
United North & South Oil Co.'s No. 1 McDonald, I.&G.N. Sur., Blk. 9, Sec. 5, 460 ft. S and 80 ft. E of NW cor. 35-acre tract ..... Coring shale 3,279 ft.

REFUGIO—REFUGIO COUNTY

E. M. Jones' No. 1-B Mitchell (D.D.), 250 ft. NW of SE line and 250 ft. SW of Mission River ..... Coring 5,515 ft.
Larco Gas Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2 ..... Drlg. shale 3,700 ft.

SOUTH LOUISIANA FIELDS

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Shell Petroleum Corp.'s No. 2 Heyd, 225 ft. out of NE cor. of Sec. 13-9s-7w ..... Sandy shale showing oil 5,111 ft.; to case off sand to deepen to 6,900-ft. sand.
Shell Petroleum Corp.'s No. 1 Fontenot, Sec. 7-9s-6w, 450 ft. due E No. 2 Heyd ..... Drlg. sandy shale 4,712 ft.

JENNINGS—ACADIA PARISH

Kathleen Oil Co.'s No. 1 Syndicate fee (W.O.), Sec. 46-9s-2w ..... T.D. 3,924 ft.; sidetracked and drlg. 3,800 ft.
Yount Lee Oil Co.'s No. 16 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w ..... Drlg. shale 8,663 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 23 Watkins (W.O.), 2,495 ft. W. and 132 ft. N of SE cor., Sec. 13-12s-10w ..... T.D. 2,844 ft.; set whipstock 2,573 ft.
Calcasieu Oil Co.'s No. 26 Watkins (W.O.), 1,199 ft. N and 1,843 ft. W of SE cor. of Sec. 13-12s-10w ..... Comp. flowing 45 bbls. net oil.
Calcasieu Oil Co.'s No. 31 Watkins, 1,402 ft. W and 1,120 ft. N of SE cor. of Sec. 13-12s-10w ..... Cap rock 3,184-98 ft.; abandoned.
The Texas Company's No. 9 State, 2,229 ft. N and 918 ft. E of SE cor. of Sec. 13-12s-10w in Twp. 21s-9w... Building derrick.
The Texas Company's No. 10 State, 2,375 ft. N and 564 ft. E of SE cor. Sec. 13-12s-10w in Twp. 12s-9w ..... Location.
Union Sulphur Co.'s No. 1 Gulf land (Humble lease), 284 ft. N, 30 ft. W of SE cor., Sec. 11-12s-10w ..... Drlg. shale and lime 5,250 ft.
Union Sulphur Co.'s No. 1 Gulf land (Pure Oil Co. lease), 1,420 ft. N, 400 ft. W of SE cor., Sec. 11-12s-10w ..... Drlg. sticky shale 4,275 ft.

If Pressure Drops « « «

Flow will STOP *altogether*

CF

Back Pressure Regulators

A HEALTHY pressure or none, must be the aim in some uses of gas. It may be that a well needs to be protected from depletion, or that gas needs to be kept at higher pressure in one part of a line or system than in other parts. Set the *Fulton Back-Pressure or Check-Pressure Regulator* for any desired minimum, and gas will flow only while pressure on the inlet side remains above that minimum. When pressure drops, it will no longer hold the valve open against the weights imposed; and therefore flow ceases. Ask for circular showing sizes and prices.

C-F regulators have been known as the best for over forty years. Correspondence is invited concerning any requirement of gas control.

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EASILY TAKEN APART

and re-assembled repeatedly *without distorting the bonnet*

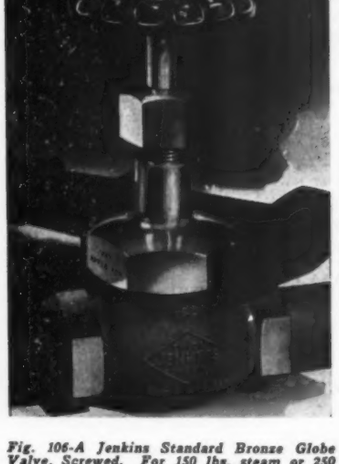

Fig. 106-A Jenkins Standard Bronze Globe Valve, Screwed. For 150 lbs. steam or 250 lbs. water working pressure.

IT is an easy job to unscrew the bonnet of this new Fig. 106-A Jenkins Standard Bronze Globe Valve. You can see why this is so. The generous hex faces offer a good grip for the wrench. The threads are clean cut, splendidly proportioned for smooth operation. The same superior quality of construction is to be noted in other parts of the design; in the extra deep stuffing box, greater number of spindle threads in contact with the bonnet, one-piece screw-over bonnet, slip-on stay-on disc holder, and Jenkins renewable composition disc. Fig. 106-A and the corresponding valves in angle, cross and check patterns, like other Jenkins Valves in bronze, iron and steel, are obtainable at your supply house. In writing us direct, ask for Form 141.

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BRONZE IRON STEEL
VALVES
Since 1864

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

VINTON—CALCASIEU PARISH

Gulf Ref. Co.'s No. 1 Gray (D.D.), 125 ft. W and 85 ft. N of SE cor. NE SE of Sec. 33-10s-12w ..... Cutting and pulling screen.
Marrs McLean's No. 13 Gray, 464 ft. E and 460 ft. S of C of Sec. 30-10s-12w ..... Rig.

SULPHUR —CALCASIEU PARISH

Union Sulphur Co.'s No. 768 fee, 375 ft. N and 188 ft. W of SE cor. SW NW of Sec. 29-9s-10w ..... Rock 1,706-16 ft.; cmtd. 12½-in. csg. 1,101 ft.
Union Sulphur Co.'s No. 769 fee, 295 ft. S, 918 ft. W of C of Sec. 29-9s-10w ..... Drlg. 410 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Refining Co.'s No. 1 Wilson & Cockran, Sec. 4-6s-5e, 100 ft. out of middle SW cor. 502-acre tract ... Sand 3,165 ft.
Port Barre Oil Co.'s No. 1 Sibille, Sec. 20-6n-5e, 600 ft. S and 124 ft. E of NW cor. 30-acre tract ..... Drlg. 320 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

C. O. Farrington et al's No. 1 Jackson, Brookshire, S. F. Austin Sur. No. 10, 750 ft. NW of Empire Gas & Fuel Co.'s No. 1 Jackson and 250 ft. S of NW line ... Spudded.
Grant & Baker's No. 1 Chesley, W. C. White Sur., 150 ft. from NW line and 150 ft. from SW line of 26-acre tract (northeast of Raccoon Bend Field) ..... Derrick.
O'Hara Oil & Gas Co.'s No. 1 Nelious, J. C. Cummings Hacienda Sur., 650 ft. N of No. 1 Schroeder in 18-acre tract, north edge Mill Creek ..... Derrick.
Pomacal & Boletka's No. 1 Schebajsa, 229 ft. N, 78 deg. E of N cor. B. Dottery Sur., near center of SW line of S. F. Austin 4 League on west fork of Mill Creek.. Drlg. 800 ft.

BRAZORIA COUNTY

W. D. Southerland's No. 1 C. W. Chapman, 294 ft. from S line and 104 ft. from E line of Lot 2, Andrew Robinson Sur. ..... Standing 1,514 ft.
The Texas Company's No. 2 Belcher, Harvey N. Little Sur., 1,728 ft. southeasterly from N cor. of S half of Sur., along NE line and thence 123 ft. at right angles ..... Sand 5,572 ft.; cmtd. 9⅝-in. csg. 5,550 ft.
United Oil Syndicate's No. 2 Levitt, John Peske Sur., 75 ft. NW of No. 1 ..... Location.

BURLESON COUNTY

Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract ..... Standing 2,210 ft.
M. O. & T. Corp.'s No. 1 Rigers ..... Shut down 2,050 ft.

FORT BEND COUNTY

O'Hara et al's No. 1 Brown, Pilant Lake, Wm. Barrett and Abner Harris Sur., 600 ft. out of SW cor. of Brown 600-acre tract ..... Drlg. shale 1,410 ft.
Naylor & DeCosta's No. 1 Naylor, 6,350 ft. N 55 deg. E from SW cor. 653-acre tract in Christman Sur. ..... Cmtd. 20-in. csg. 140 ft.
Stone & Wyman's No. 1 Beard, H.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,892 ft. from NE line.... Drill stem stuck 975 ft.

GRIMES COUNTY

Barnett et al's No. 1 Dodd, Timothy Jones Sur., 280 ft. N Cobb & Rasmussen's No. 1 Dodd ..... Rig.
Rianjo Oil Co.'s No. 3 Cuthrell, Patrick B. O'Connor Sur., 150 ft. S, 10 degrees E of No. 2 ..... Shut down 1,150 ft.
Stanolind Oil & Gas Co.'s No. 1 Mary Sullivan, A. Yeamens Sur., 998 ft. out of SE cor. of 712-acre tract.... Rig.

HARRIS COUNTY

Givens & Daybault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. ..... Drlg. sandy shale 3,345 ft.
Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. ..... Shut down 420 ft.
Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74 deg. ..... Shut down 2,720 ft.

JACKSON COUNTY

Chicago Gulf Corp.'s No. 4 Druschell (W.O.) ..... Rig up to deepen.
Chicago Gulf Corp.'s No. 10 Druschell, Hayes Sur., 1,300 ft. NW of No. 3 ..... No report.

JASPER COUNTY

Hext Drlg. Co.'s No. 1 Flourney, B. F. Jones Sur., 900 ft. NW of Helmerich & Payne's No. 1 Flourney..... Shale 3,787 ft.; shut down.

JEFFERSON COUNTY

Brown et al's No. 1 M. O. Todd, 200 varas S and 58 varas E of NW cor. of Wm. Carr Sur. ..... Gumbo 850 ft.; shut down.
John I. Pipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 205-acre tract ..... Water sand 2,100 ft.; shut down.
Texas Gulf Sulphur Co.'s No. 4 Thomas, Fannett, Wm. H. Smith Sur., 1,500 ft. S and 350 ft. W of NE cor. tract ..... Sulphur test.
C. R. Tolliver et al's No. 1 Tolliver, Duches Sur., 3,500 ft. from W line and 1,500 ft. S of Pine Island Bayou.. No report.
Westbury Oil Co.'s No. 4 West, 450 ft. W and 4,210 ft. S of NE cor. of T. D. Yoakum Sur. ..... Shut down in gumbo 600 ft.

LIBERTY COUNTY

Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; shut down.
J. T. May et al's No. 1 Dunman, J. C. Martin League... Location.

MATAGORDA COUNTY

United North & South Oil Co.'s No. 1 Stoddard, J. C. Keller Sur., 150 ft. W and 546 ft. N of SE cor. Blk. 53, Buckeye Townsite ..... Drlg. shale 7,702 ft.

MONTGOMERY COUNTY

Herman Heep et al's No. 1 Cartwright, 2,851.6 ft. southerly along W line from NW cor. of John O. Davis Sur. and thence 450 ft. E from said line..... Drlg. gumbo 1,616 ft.
Pevehouse Oil Co.'s No. 1 Sealey, Jas. Pevehouse Sur., 1,575 ft. N of N line of Horton & Woodson's 1,562-acre tract and 2,226 ft. E of W line of H.&W. 1,870-acre tract ..... Drlg. sandy shale 3,586 ft.

NEWTON COUNTY

R. T. Briscoe et al's No. 1-A Joe Inman, 1,950 ft. E and 500 ft. N of SW cor. J. M. Scott Sur. ..... Shut down 1,700 ft.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... T.D. 4,063 ft.; sidetracked to 3,390 ft.; shut down.
Crew Oil Co.'s No. 1-A Mansfield, 80 ft. E of No. 1..... Shut down 2,275 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... Shut down 3,162 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Shut down 1,517 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. ..... Shut down 4,627 ft.
J. C. Dixon's No. 1 Peck, 450 ft. S, 150 ft. E of NW cor. of S half of Sec. 24, Bonnie View Ranch Subd., Estaban Lopez Sur. ..... Cmtd. 12½-in. csg. 100 ft.; standing.
Humble Oil & Ref. Co.'s No. 2 O'Connor, John Keating Sur., 12,625 ft. N of S line at right angles and 3,158 ft. W of E line at right angles ..... Drlg. sand 1,308 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs ..... Shut down 760 ft.

TRINITY COUNTY

John Deering's No. 1 J. B. Gibson ..... Drlg. 1,725 ft.
Mound Prairie Oil Co.'s No. 1 Cameron ..... Drlg. sticky shale 2,965 ft.
Scientific Producers Co.'s No. 1 Thompson, I.&G.N. Sur. No. 47, 50 ft. out of NE cor. of H. K. Thompson 199-acre tract ..... Shut down 1,191 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,258 ft.; cem. 6-in. casing 1,218 ft.; standing.

Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ..... Shut down 5,025 ft.

VICTORIA COUNTY

Bunte et al's No. 2 Keeran, Martin DeLeon Sur., 200 ft. E of No. 1 ..... Location.

T. B. Slick Estate's No. 2 McFaddin, J. Varian Sur., 2,500 ft. NW of No. 1 and 1,100 ft. NE at right angles to SW line of lease ..... Moving in.

The Texas Company's No. 4 McFaddin, 86 deg. E, 1,728½ ft. from NE cor. of Andrew J. Gray Sur. in John M. Rine Sur. ..... Spudded.

WALKER COUNTY

Hart Oil Co.'s No. 1 Thompson Lbr. Co., Jose Ortega Sur., 1,265 ft. S, 1,876 ft. W of SW cor. of J. B. Gibson's 71-acre tract ..... Shut down for repairs 2,090 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... No report.

SOUTH LOUISIANA

ASCENSION PARISH

McElroy Pet. Co.'s No. 2 Lacey, 150 ft. S, 150 ft. W of NE cor. of Sec. 29-10s-4e ..... Shut down 4,515 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w..... Shut down 875 ft.
L. O. Davis' No. 1 Industrial, Sec. 29-9s-10w..... Standing 6,568 ft.
Hill Oil Co.'s No. 1 W. S. Vincent et al, 642 ft. W, 75 ft. N from SE cor., Sec. 25-10s-10w..... No report.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w..... Shut down 3,650 ft.
Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w ..... Rig.

CAMERON PARISH

Brownie-Babbette Oil Co.'s No. 1 R. A. Moore, 562 ft. W, 50 ft. S of NE cor. E half SE of Sec. 18-12s-12w.. Rigging up.

EVANGELINE PARISH

Emile LeDeau's No. 1 Vidrine, 260 ft. W and 350 ft. S of NE cor. of Sec. 47-3s-2e ..... Rig.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 27 Lake Peigneur, Sec. 58-12s-5e, midway between Nos. 24 and 25..... Sulphur test.
Jefferson Lake Oil Co.'s No. 28 Lake Peigneur, Sec. 58-12s-5e, 150 ft. W NW of No. 26 and 1,720 ft. SW No. 25 ..... Sulphur test.
Warrick Oil Co.'s No. 1 Bernard, 912 ft. N and 150 ft. E of SW cor. Sec. 54-12s-7e ..... Derrick.

IBERVILLE PARISH

Standard Oil Co.'s No. 2 Myrtle Grove-Wilbert, Bayou Choctaw, 2,040 ft. N and 600 ft. W of C of Sec. 52-9s-11e ..... Drlg. 1,604 ft.
Standard Oil Co.'s No. 2 Gay, Bayou Choctaw, 4,500 ft. N and 600 ft. E of SW cor. SE of Sec. 53-9s-11e..... Drlg. 4,650 ft.
Standard Oil Co.'s No. 7 Schwing, Bayou Blue, 1,359 ft. N and 1,856 ft. E of C of Sec. 74-9s-10w..... Drlg. 3,885 ft.

LA FOURCHE PARISH

Pop Oil Co.'s No. 1 Esponge Vizier, Sec. 26-21s-22e, 78 ft. N, 289 ft. E of The Texas Company No. 4 L.L.&E. ..... Drlg. 3,452 ft.
State Prod. Co.'s No. "D" W. H. Stark, 1,935 ft. S and 1,550 ft. W of NE cor. Sec. 72-15s-15e ..... Sulphur test.
The Texas Company's No. 4 L.L.&E., Leesville, Sec. 26-21s-22e ..... No report.

POINTE COUPEE PARISH

Grand Bay Oil & Gas Co.'s No. 1 Moniotte, 10,140 ft. S and 13,450 ft. E of NW cor. Twp. 5s-11 in Sec. 34....Shut down 310 ft.

TERREBONNE PARISH

Freeport Sulphur Co.'s No. 1 Wurzlow, 1,200 ft. N and 2,600 ft. W of SE cor. Sec. 8-22s-18e ..... Rig.
La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e ..... Drlg. 4,800 ft.
The Texas Company's No. 5 State, Dog Lake, 2,270 ft. S and 450 ft. E of NW cor. of Sec. 5-22s-18e..... Derrick.
The Texas Company's No. 4 La.L.&E., Bay Junop..... Location.
The Texas Company's No. 5 State, Lake Pelte, 1,505 ft. N and 1,539 ft. W of SE cor. of Sec. 8-23s-18e..... Cap rock 1,826-36 ft.
The Texas Company's No. 10 State, Lake Barre..... Location.
The Texas Company's No. 12 State, Lake Barre..... Drlg. gumbo 1,226 ft.
The Texas Company's No. 14 State, Lake Barre..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 2 Alliance Trust Co. Gueydan, 1,-875 ft. E and 950 ft. S of NW cor. of Sec. 34-11-1w..T.D. 2,757 ft.; no report.

WEST FELICIANA PARISH

Putnam Syndicate's No. 3 Como Plantation, Sec. 51-1s-4w. Shut down 2,449 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w..... S.D. 3,420 ft.

WASHITA COUNTY

Miley Pet. Co.'s No. 1 Wolfe, NE SW Sec. 23-9-17w..... Rig.
Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w ..... Drlg. 2,740 ft.; show oil 2,459-67 ft.; S.D. 2,757 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 ..... S.D. 1,265 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1E.. T.D. 4,720 ft.; to cement.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 ..... S.D. 1,720 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10.. T.D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... T.D. 740 ft.; plugged back to 456-80 ft.
Whalem et al's No. 1 Mason, NW SE SW Sec. 24-6s-9.... S.D. 935 ft.

CARTER COUNTY

Lundy's No. 1 Spraggins, C NE NW SW Sec. 8-1s-2w.... Drlg. 2,000 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE Sec. 13-4s-8w..... Location.

LOVE COUNTY

Schemerhorn et al's No. 1 Bourland, NE NW SW Sec. 1-6s-1 ..... T.D. 1,172 ft; abd.

MARSHALL COUNTY

Starrett et al's No. 1 Henry, NE NW, Sec. 22-7s-6 ..... Rig.
F. H. E. Oil Co.'s No. 1 Beard, NW SE Sec. 3-8s-6..... Drlg. 510 ft.
Everett et al's No. 1 Agres, SE NE Sec. 14-7s-6 ..... S.D. 1,170 ft.
Newman et al's No. 1 Henry, NW cor. Sec. 22-7s-6 ..... Rig.

McCURTAIN COUNTY

Prassell et al's No. 1 Wagoner, SE NE Sec. 5-4s-27 ..... Drlg. 250 ft.
Stampfs et al's No. 1 Harris, SW NW SW Sec. 14-3s-25.. Drlg. 2,721 ft.
Stewart's No. 1 Patterson, C SE SE Sec. 7-4s-24 ..... U.R. 1,340 ft.

PUSHMATAHA COUNTY

Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-3s-13 ..... Fishing 340 ft.

STEPHENS COUNTY

Dameron & Brock's No. 1 Dameron, SE SW NE Sec. 11-2s-6w ..... Drlg. 360-65 ft; 2,000,000 ft. gas.
Brown's No. 1 Hightower, SW SE NE Sec. 15-3s-5w..... Sand 990-1,004 ft.; S.O.; S.D.
George's No. 1 Ryan, NW SW NE Sec. 31-3-15 ..... Drlg. 510 ft.

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Vellumoid gaskets, cut from the sheet, last as long as the flange itself. They make tight connections which *stay tight.*

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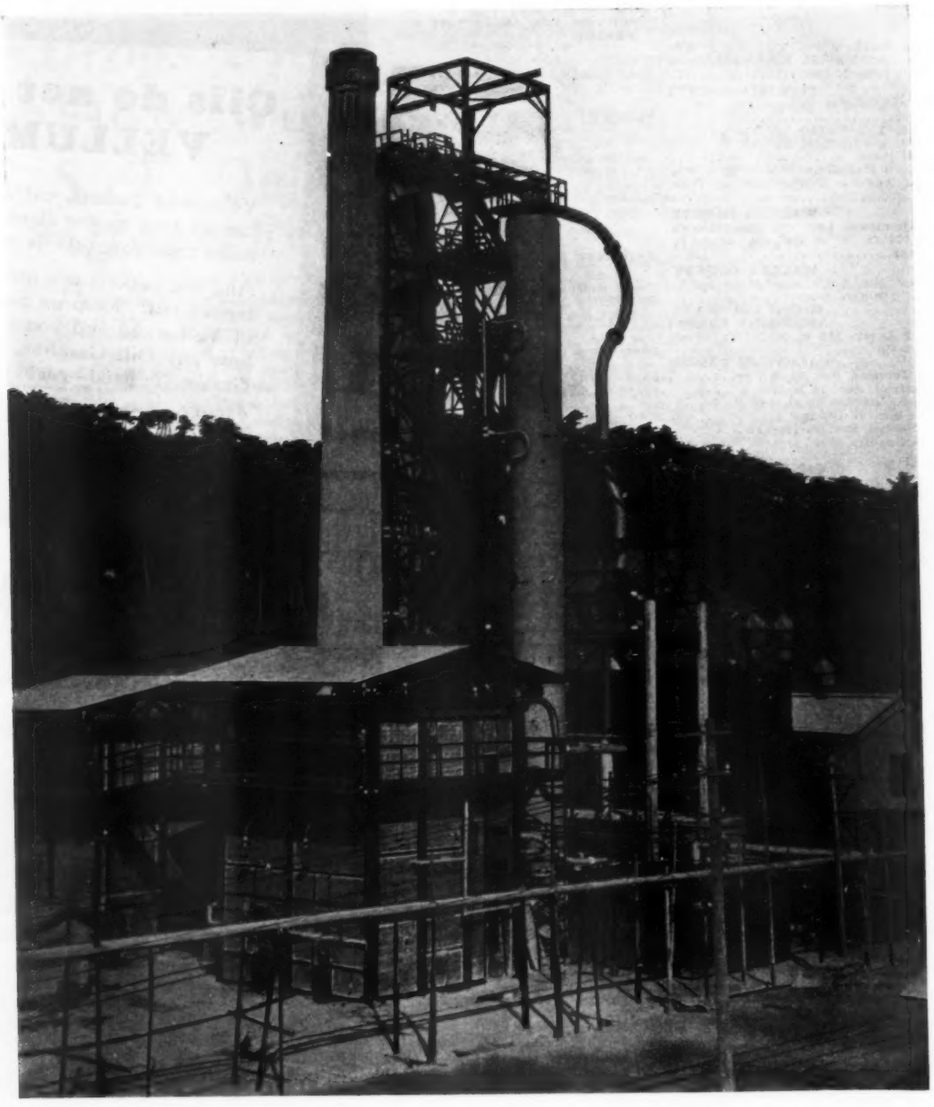

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This two-stage distillation unit runs 2500 barrels per day of California crude to high grade lubricating stocks. The products recovered to specifications in a single process without rerunning are gasoline, naphtha, kerosene, gas oil, light, medium and heavy lube stocks, and asphalt.

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FOSTER WHEELER

Brief Items for Petroleum Refiners

Standard of New Jersey Announces Personnel Changes

NEW YORK, Mar. 1.—A number of important changes in the Standard Oil Co. (New Jersey) organization at 26 Broadway and in the marketing field were announced here this week.

The first was the promotion of Garrett S. Boetsma from assistant manager to manager of the Newark branch, thus filling the vacancy created by the election of John E. Skehan as vice president and general salesmanager of the Standard Oil Co. of Louisiana.

Russell N. Keppel, former manager of the personnel and training department at 26 Broadway has entered the sales organization, and takes the position of acting assistant manager at Newark under Mr. Boetsma. Whitney C. Colby moves up from assistant manager to head of the personnel and training department in New York.

Another important change in the sales field takes place as E. T. Lemmon, former assistant to C. G. Sheffield in New York, goes to Norfolk, Va., as branch manager, with L. F. Gutting appointed assistant manager of that branch.

Adrian C. Minton, recently elected director and general salesmanager of Colonial Beacon Oil Co. has returned to 26 Broadway headquarters here as assistant to J. H. Senior, co-ordinating director of the Standard Oil Co. (New Jersey) for domestic marketing.

Coincident with Mr. Minton's appointment as director of Colonial Beacon, John R. Riddell was elected vice president and director of that company. Mr. Riddell has been with the Jersey organization for the past 21 years, having started with Standard Oil Co. of Louisiana in 1911. Prior to his transfer to Boston in January last year he had been assistant manager in charge of marketing for the Louisiana company in Tennessee and Arkansas.

BUILDING SMALL PLANT

The Greenville Refining Co., Inc., has been organized and is now building a small skimming plant near Greenville, Muhlenberg County, Kentucky. The plant, which will have a capacity of 100 bbls. daily, will be in operation about the middle of March.

W. C. Malone is president of the Greenville company. Other officers are H. E. Eaves, Sr., vice president, G. L. Hill secretary and treasurer and O. R. Sellers superintendent of refinery. The plant products will be distributed locally in tank wagons.

CONSIDER CRACKING UNIT

The Rotary Process Refining Co., Ltd., of Los Angeles is considering the construction of a cracking plant at its Vinvale, Calif., refinery. The company three years ago installed a new type cracking plant called the rotary process. After being operated for a short time the plant was shut down. Later, the equipment was changed and the plant was operated as a skimming plant. The plant is shut down at this time.

E. D. BIRCH PROMOTED

E. DeGray Birch, who for several years has been assistant to the president of the Shell Oil Co. of California with offices in San Francisco, has been appointed vice president and treasurer of Shell Eastern Petroleum Products, Inc. With the exception of the war period Mr. Birch has been with the Shell group of oil companies since 1902.

McCAMMON IN CHARGE SALES AND REFINING

L. B. McCammon has been placed in charge of the sales and refining departments of the Marathon Oil Co., according to an announcement by W. W. Fleming, president of the company. Mr. McCammon, who is well known in Mid-Continent refinery circles, was formerly an

L. B. McCammon

official of the Transcontinental Oil Co., which was taken over by the Ohio Oil Co. two years ago. The refining and marketing divisions of the former Transcontinental have since continued operations as a subsidiary of the Ohio Oil Co. under the name of the Marathon Oil Co. Mr. McCammon has been acting as assistant to Mr. Fleming since the Marathon was organized. He will be elected a vice president of the company at the annual meeting March 7.

H. J. Scott will continue as general manager of Marathon sales and A. J. Slagter general superintendent of refineries. The company has refineries located at Boynton and Bristow, Okla., and Del Rio and Fort Worth, Tex. The company has a large number of bulk and service stations in southwestern states.

ADD FRACTIONATING TOWERS

The Texas Pacific Coal & Oil Co. is making an expenditure of around $30,000 on its refinery at Fort Worth, installing two more fractionating towers, improving its preheater and enlarging the water supply system. The work will take about three or four weeks to complete.

COMPLETE EAST TEXAS UNIT

FORT WORTH, Tex., Feb. 29.—The East Texas Refining Co. has completed construction on a cracking unit at its Longview refinery, and 35 additional men have been put to work at the refinery which has a daily crude capacity of 12,000 bbls. per day.

INCREASE CRACKING CAPACITY

The Bartles-Maguire Oil Co. of Milwaukee, Wis., is increasing the cracking capacity of its East Chicago, Ind., refinery with the installation of a controlled coil unit. The equipment can be operated as a vapor phase or liquid phase unit. The company had previously installed a vapor phase unit and also a Jenkins cracking unit.

COMPLETE AND OPERATE THE STERLING PLANT

Application for a charter to organize a company to operate the Sterling Refining Co.'s plant in Oklahoma City has been made with W. G. Johnson, president; B. F. Green, vice president, and L. W. Pratt, vice president and general counsel. Construction work was started on the new plant several months ago but had been suspended prior to the new company taking over the properties. Completion of the plant is now under way and within a week or 10 days trial runs will be made.

The individuals interested in the new company are officers in the Gulf States Oil Corp. and the White Oak Corp. These companies are now operating a plant in Oklahoma City and one in Allen.

The new company also owns and operates the Refiners Production Co., which is now completing its first producer in the Oklahoma City Field and has spudded in its second test in the north end of the local field.

The Peerless plant is capable of running 2,000 bbls. of crude daily but the schedule of operations will be made consistent with the future production coming from this company's and its affiliated company's wells.

NEXT W.P.R.A. MEETING SET FOR APRIL 6 TO 8

The Western Petroleum Refiners Association will hold its next annual meeting in Excelsior Springs, Ark., April 6, 7 and 8, during which time one session will be devoted to the reading of technical papers and discussions and another to general subjects of interest. The program is practically completed and will be announced soon. The technical papers will be presented during the afternoon of the first day while the general meetings will be held during the morning and afternoon of the following day. The convention will close at noon on the third day.

NAPH-SOL PLANT OPERATING

MUSKEGON, Mich., Feb. 26.—The local refinery of the Naph-Sol Refining Co., which suffered a fire last week, will resume operations within a few days. The fire damage was estimate at approximately $12,000.

A new double pipe still and an old 300-bbl. shell still, which will be used temporarily for rerunning for naphthas, will be placed in operation immediately. A new 500-bbl. shell still has been ordered to replace the smaller 200-bbl. shell still which had been tubed with 800 feet of heavy 4-inch pipe to increase its heating surface. The plant will resume operations on a basis of 1,500 bbls. a day of crude.

A new 500-bbl. agitator tank, about 10,000 bbls. of additional storage and other new equipment has been installed in connection with the present expansion program necessitated by rapidly increasing business. About 600 bbls. of crude is being ogtained from Muskegon wells, while from 750 to 1,000 bbls. a day is being shipped in from the Mount Pleasant Field of Central Michigan.

PANHANDLE CURTAILS RUNS

WICHITA FALLS, Tex., Mar. 1.—The Panhandle Refining Co., pioneer refining company of North Texas, today notified its crude oil pipe line connections that it would confine operations to the handling of its royalty oil. The company said that the runs at its local refinery would be curtailed so that only this quantity of crude would be refined. The refinery in the past has been running around 3,000 bbls. of crude oil daily.

WAGGONER COMPLETING IMPROVEMENT PROGRAM

The refinery of the Waggoner Refining Co., Inc., located at Electra, Tex., will be shut down during the month of March in order to complete an improvement program at the plant. The company has been making changes at the refinery with the view of increasing operating efficiency and adding to the antiknock rating of its gasoline. To finish this program it is necessary to shut down the refinery for one month.

The Waggoner refinery, which was one of the first to be built in North Texas, has a crude oil capacity of 3,500 bbls. daily. The company has sufficient refined products in storage to take care of the requirements of its customers during the shutdown.

GASOLINE'S QUALITY TO BE SHOWN BY PLACARDS

OKLAHOMA CITY, Feb. 22.—Placards indicating the quality of gasoline dispensed at filling stations throughout the state must be displayed on pumps after March 4, when the new gasoline and inspection regulations become effective.

E. D. Graham, chief chemist for the Corporation Commission, explained the new rules, which conform to federal standard gasoline specifications. The three types of gasoline to be indicated by the dispensers are "Oklahoma motor gasoline," "off specification gasoline" and "inferior motor fuel." The second grade is suitable for use in most cases, although it fails to meet the federal specifications. The inferior grade is detrimental to motors and should not be used for motor cars.

GULF INSTALLING FOUR COKE STILLS AT TOLEDO

TOLEDO, Ohio, Feb. 27.—The Gulf Refining Co. is enlarging its local refinery with the addition of six new coke stills. When completed the refinery will have a battery of 14 coke stills.

The Gulf Refining Co. acquired the local refinery in 1930 from the Paragon Refining Co. Practically an entire new plant was completed last year at the Paragon site, the old Paragon refinery being dismantled. The plant now has a rated crude oil capacity of 12,000 bbls. daily. The cracking equipment which is Gulf design has a rated capacity of 6,000 bbls. daily.

To secure outlets for the local refinery, the Gulf company continues to rapidly expand its marketing facilities in northwestern Ohio, Michigan and Indiana. The company also has new refineries completed last year at Cincinnati and Pittsburgh.

TO INSTALL CRACKING UNIT AT COUTTS PLANT

The Northwest Stellarene Co., Inc., of Shelby, Mont., has completed plans for the construction of a Dubbs cracking unit at its Coutts, Alberta, refinery. The new unit will have a capacity of 1,200 bbls. daily. It will replace an 800-bbl. unit of the Leamon type which was constructed several years ago.

The Coutts refinery, which has a crude oil capacity of 1,500 bbls. daily, is located just across the line from Montana in Alberta. The plant is operated with crude oil from the Kevin-Sunburst Field. The company also has a 2,000-bbl. skimming plant in operation at Shelby, Mont. James W. Johnson, of Johnson, is vice president of the company. Bud Vadnais is superintendent of both refineries.

Manufacture of Natural Gasoline

Sees Improvement Ahead in Natural Gasoline Industry

By W. K. Warren
President, Warren Petroleum Co.*

"What future, if any, has the natural gasoline business?"

If you are an owner or employe engaged in the manufacture or distribution of natural gasoline, you no doubt have asked that question several times during the past few weeks when your products have sold far below the cost of manufacture.

If you get consolation in having company in your misery you can rest assured that the same question is being asked by everyone from the proprietor of the carnival peanut stand to the executive heads of the largest industries and public utilities.

The greater part of all business is being carried on at a loss and has been for some time. Due to that fact this is no time to be unduly concerned about what's coming. It would be just as sensible to attempt to gauge the future of business during the present depression as it was to base the future on conditions as they existed during the peak of the recent boom period. The fact that too many people did the latter is the main reason we are where we are.

Pessimism Not New

Pessimism is not new in natural gasoline. It was the rule in the early days. Manufacturers in 1913 and 1914 had trouble finding an outlet for their products at any price and then within a few years saw prices climb to more than 20 cents per gallon.

This was followed with a rapid decline and with their products selling below refinery gasoline, manufacturers were again confident that their business had gone permanently to the bow wows. Within a year, prices returned near the 20-cent level with a substantial premium over the refinery product.

Understand, we are not predicting a quick return to high prices. But we do have confidence in the stability and permanence of the oil industry and are equally certain that our branch will be able to maintain its relative position in the return to normalcy.

Too many economists, including some within our branch, look upon natural gasoline as the adopted child of the oil industry, to be cast off whenever considered expedient. This attitude is 100 per cent wrong. Natural gasoline is just as much an integral part of the oil business as the production of crude or the manufacture of refined products.

Basically a Motor Fuel

Natural gasoline basically is a motor fuel. If you are worried about the future remember that the domestic consumption of all motor fuels established a new peak last year in contrast to conditions in other major industries where the commodity demand was from 25 to 75 per cent of normal. The remarkable record on the demand side during a period of severe depression is indicative of what will happen when business is once more on an even keel.

On the production side our supply is

(Continued on Page 85)

*Published in Natural Gasser.

GLADEWATER PLANT OPERATING

GLADEWATER, Tex., Feb. 29.—The Gladewater Refining Co. has completed its natural gasoline plant near the company's refinery here. Gas will be brought to the plant from nearby wells in the East Texas Field and the plant's operation will be correlated with that of the refinery.

METHODS FOR QUIETING GAS ENGINE EXHAUSTS

By Hugh Lamberth
Fluor Construction Co.*

The problem of cooling and quieting gas engine exhausts is certainly a common one to all operators in the natural gas and natural gasoline industry. There has perhaps been more individual and collective experimenting with mufflers than with any other mechanical development connected with gas engine installations. There have unquestionably been some very satisfactory dispositions made of individual cases, but the fact remains that proper cooling and quieting without undue sacrifice in some direction and a

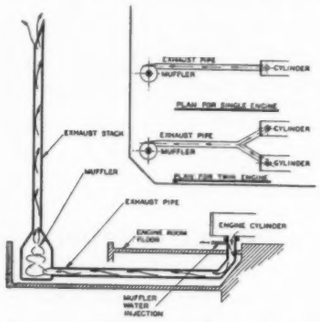


Diagram 1—Typical installation gas compressor exhaust using water injection.

generally satisfactory design yet remains to be thoroughly developed for the great majority of installations.

In analyzing the problem we shall first develop the purpose of the exhaust line, then the added features of cooling and muffling. The primary function of the exhaust line is to conduct the exhaust gases from the engine discharge connection to the atmosphere outside of the engine room where they can be harmlessly dissipated.

As the exhaust temperature at the engine is on the order of 1,000° F. and the heat content of the gases represents 35 to 50 per cent of the total heat energy in the cylinder, some means of cooling or of confining the heat is highly desirable. Some of the effects of not properly cooling the exhaust pipe or confining the heat are (1) creation of fire hazard (2) overheating and subsequent breaking and cracking concrete floors and foundations (3) uncomfortably hot engine room temperatures (4) breaking pipe flanges and exhaust stools due to expansion strains (5) danger of burning operators (6) inability to keep paint on stacks (7) increased back pressure unless liberal pipe sizes are used to offset increased gas volume.

The various types of exhaust lines commonly used can be classified as follows: (1) The direct uncooled type; (2) the water cooled type; (3) the air draft cooled type.

Those of the direct uncooled type are often insulated or guarded. This is done both as a means of preventing the heat being dissipated into the engine room and as a protection to personnel. The vertical exhaust line from the top of the engine through the roof as opposed to the horizontal type with outside stack presents the simplest problem of this type.

Current Practice

The water cooled type, by far the most common in current practice, employs a stream of water injected into or near the exhaust stool. Water may be obtained from (1) a high pressure system available in the plant, such as engine jacket cooling supply, (2) a low pressure gravity system, such as an elevated tank or (3) an independent muffler water system which may employ either low or high pressure. The terms "high" and "low" are used here relatively. High pressure might be taken to mean a pressure exceeding 10 pounds per square inch and low pressure to mean only that pressure required to convey the water and inject it into the exhaust line. Water is injected in two ways, (a) by direct connection to the exhaust line through valve control or (b) by a sight feed system with valve control above the feed pot.

A typical installation showing engine cylinder, exhaust pipe, muffler and stack

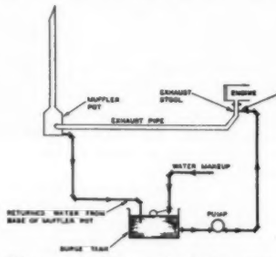


Diagram 2—Water circulation system for exhaust.

with point of water injection is shown in Diagram 1. In the upper right hand corner of diagram is shown one common method of connecting single and twin engine exhausts to the outside stack. Water is injected in each stool separately in the case of the twin engine.

Some operators prefer a circulation of water through the exhaust pipe. That is, more water is introduced than can be evaporated due to heat absorbed, and the remainder flows to a hot well to be recirculated. Such a system is shown in Diagram 2.

A recirculating system of this nature probably provides a greater cooling effect, than injection of only a small amount of water, and has the added advantage of tending to wash some of the hardness precipitated out of the exhaust pipe. The additional cooling effect may be explained by the sensible heat capacity of the unevaporated water and the greater tendency to evaporate at its increased temperature.

Evaporation temperatures are also approached more rapidly due to higher temperature of water at the point of injection, as the recirculated water is not usually cooled.

In many cases only a small amount of water is used on the theory that it will

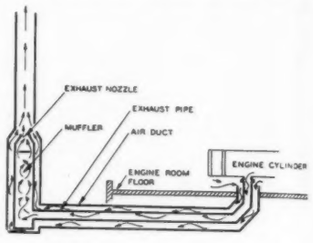


Diagram 3—Quieting by jet action.

all evaporate and leave no residue to be wasted or recirculated. It is extremely difficult to regulate the quantity of water to prevent some not being evaporated. This may be made clearer by starting with the logical assumption that in any given case there is a certain amount of

(Continued on Page 85)

*Read before California Natural Gasoline Association.

Typical installation using jet action for quieting exhaust.

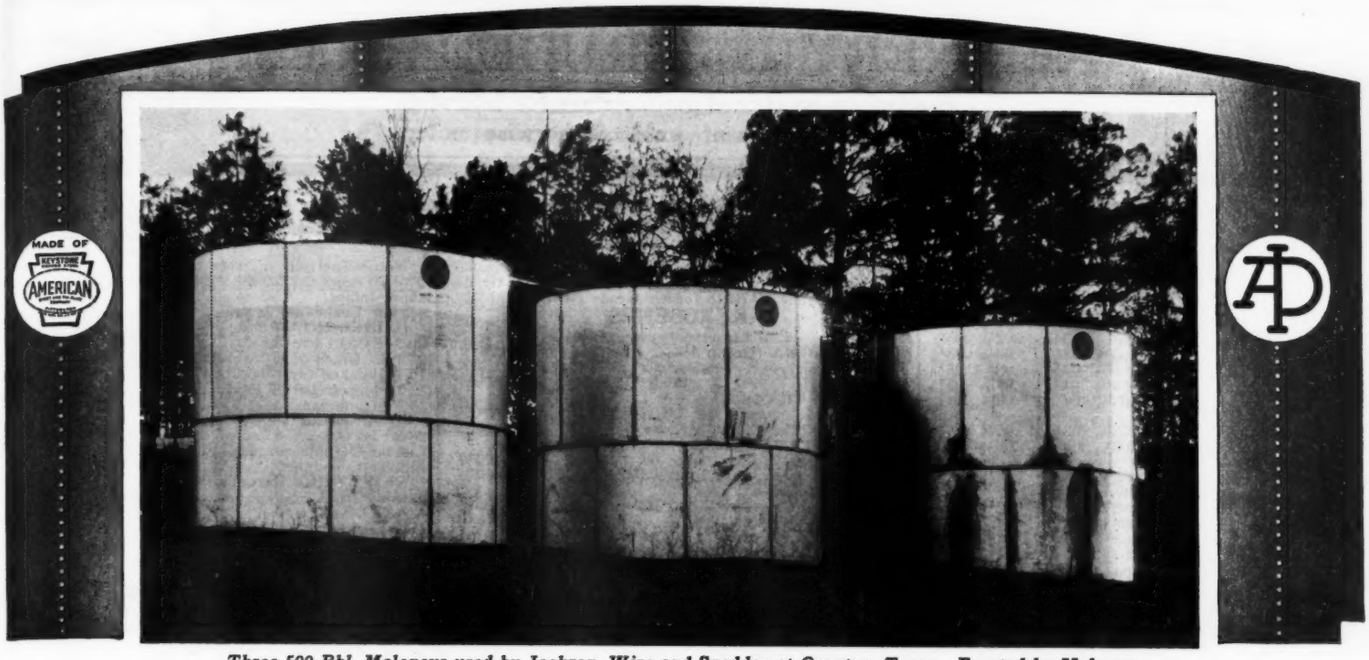
HIGH TEMPERATURES FAVOR BLENDED FUEL

Natural gasoline manufacturers have been interested in comparative tests made in some of its own laboratories and in those of other laboratories which indicate that a blend of straightrun gasoline and natural gasoline shows a lesser falling off in the octane value when tested at high motor temperatures than cracked gasoline of the same volatility. A full discussion of this phase of the investigation was included in The Oil and Gas Journal of January 21, 1932, page 22, in an article by R. C. Alden of the Phillips Petroleum Co. It was shown from his results that superstabilized natural gasoline motor fuels and Ethylized natural gasoline motor fuels maintained a more constant antiknock value as the jacket temperature of the motor is raised than do the majority of the cracked fuels tested.

This difference in the antiknock value of the motor fuels at the higher temperatures will be used as a sales argument and there will be further research work done in an effort to show that higher temperatures should be used when determining the octane number.

Because refiners are increasing their cracking operations to make more gasoline of high octane value and this in turn has caused a great increase in the volume of light fractions recovered in their gasoline plants, natural gasoline manufacturers see a portion of their business going. As the program of increasing the octane value of the gasoline through the addition of cracking facilities progresses, this loss of sales to the refiners must be equalized.

Two courses have been suggested, the one is to sell a well stabilized natural gasoline as a motor fuel without blending, in direct competition with refiners, and the other is to more forcefully point out the superiority of natural gasoline as a blending material for the raising of the octane value of the straightrun gasoline, which blend the laboratory data indicate has a more constant antiknock value in the zone of high operating temperatures than cracked gasoline.



Three 500-Bbl. Maloneys used by Jackson, Wise and Snedden at Overton, Texas. Erected by Maloney Sales Co., Distributers.

Maloney VAPOR-PRESSURE Tanks are
A SOUND INVESTMENT
Because they Increase NET Earnings

When more efficient equipment would more than pay for itself in a short time, it is good business to make the investment. Our *Vapor-Pressure* Tanks restrict the movement of vapors—hold the valuable lighter fractions in the oil—enable you to sell ALL the oil produced, at WELL GRAVITY. Thus they increase your earnings more than enough to pay for themselves.

Features in the money-making and money-saving construction of Maloney *Vapor-Pressure* Tanks are: rust-resistant Keystone Copper Steel of not less than 12-gauge; heavy 2″ angle ties and reinforcements; valves set at 16 ounces pressure and ½ ounce vacuum; and our special aluminum paint made with a spar vehicle containing water-proof and alkali-proof Inhiburine.

"Alone in Quality"

MALONEY TANK MFG. COMPANY

38 N. Peoria Ave., Tulsa, Oklahoma

Distributers at All Principal Petroleum Points

Packed in Steel-Bound Crates for Export

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINES

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
*U. S. Motor	.03	.03⅛	.02¾	.03⅛
60-62 400	.03⅛	.03¼	.03	.03¼
64-66 390	.03¾	.03½	.03⅝	.03½
64-66 375	.03⅝	.03⅞	.03⅝	.03⅞
68-70 350	.03⅞	.04	.03¾	.04
NORTH TEXAS—				
*U. S. Motor	.03	.03⅛	.02⅞	.03
60-62 400	.03⅛	.03¼	.03⅛	.03¼
64-66 390	.03⅜	.03½	.03⅜	.03½
64-66 375	.03⅝	.03⅞	.03⅝	.03⅞
64-66 360	.03¾	.04	.03¾	.04
‡NORTH LOUISIANA—				
*U. S. Motor	.03⅜	.03½	.03¼	.03½
60-62 400	.03½	.03⅝	.03½	
‡ARKANSAS—				
*U. S. Motor	.03⅜	.03½	.03¼	.03½
CHICAGO Based on Okla. (Group 3)—				
*U. S. Motor	.02⅞	.03	.02¾	.03
60-62 400	.03⅛	.03¼	.03	.03¼
64-66 375	.03¾	.04	.03⅝	.04
Aviation fighting grade	.04½	.05	.04½	.05
68-70 360	.04	.04¼	.04	.04¼

Octane Ratings—Above quotations cover price ranges on gasolines in which no octane rating is given. In the case of the U. S. Motor and 60-62 400 endpoint grades where an octane rating of 57-65, inclusive, is guaranteed, prices are one-half cent per gallon higher than quotations shown in above tables; where an octane rating of better than 65 is guaranteed, the prices are three-fourths cent higher. In the case of the remaining grades, gasolines of 65 octane rating or higher are quoted one-fourth cent higher than the quotations shown in above tables. Unless otherwise provided by agreement of buyers and sellers, the Series 30 testing equipment of the Ethyl Gasoline Corp. is recognized as standard in determining octane ratings.

*Present distillation specifications on U. S. Motor gasoline are: 10 per cent evaporated, 167° F. maximum; 50 per cent, 284° F. maximum; 90 per cent, 392° F. maximum; residue not exceeding 2 per cent; maximum vapor pressure, 12 pounds. Additional specification on U. S. Motor gasoline available from bulletins of Bureau of Mines, Washington, D. C.

‡For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
U. S. Motor	.04	.04⅛	.04	.04⅛
60-62 400	.04½	.04¾	.04⅜	.04⅝
64-66 375	.04⅝	.05	.04¾	.05
68-70 350	.05¼		.05½	

Otane Ratings—In the case of U. S. Motor and 60-62 400 endpoint grades, same price differentials based on octane ratings as shown in above tables for Oklahoma and other Mid-Continent areas.

CALIFORNIA (domestic movement only)—				
54-58 U. S. Motor	.04½	.05	.04½	.05
58-60 400	.05	.05½	.05	.05½
NEW YORK (Bayonne, N. J.)—				
U. S. Motor, below 65 octane number	.05½	.05¾	.05¾	
U. S. Motor, min. 65 octane.	.06	.06½	.06½	

NAPHTHAS

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
50-52 450 (blending)	.03	.03¼	.02¾	.03
PENNSYLVANIA—				
50-54 430-450 (blending)	.04		.04	
ARKANSAS—				
48-50 450 (blending)	.03⅛	.03¼	.03	
CHICAGO Based on Okla. (Group 3)—				
50-52 450 (blending)	.02¾	.03	.02¾	.02⅞
Cleaners' naphtha, 56-58 gr. 200 i.b.p.-320 e.p.	.05⅝	.05⅞	.05⅝	.05⅞
Lacquer diluent, 180 i.b.p.-250 e.p.	.09	.09¼	.09	.09¼
Lacquer diluent, 140 i.b.p.-200 e.p.	.09	.09¼	.09	.09¼
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.05¾	.06¼	.05¾	.06¼
Stoddard solvent, 300 i.b.p.-410 e.p., over 100° flash	.04⅞	.05⅛	.04⅞	.05⅛
Pet. thinner, 290, 300 i.p.b.-415 e.p., over 83° flash	.04⅜	.04⅝	.04⅜	.04⅝
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.05¼	.05½	.05¼	.05½
Petroleum spirits	.03⅞	.04¼	.03⅞	.04¼

NATURAL GASOLINES

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
Grade 18-55	.01⅞	.02⅛	.01⅞	.02⅛
Grade 26-70	.01⅝	.01½	.01⅝	.01½
Grade 30-70	.01¼		.01¼	
NORTH TEXAS—				
Grade 18-55	.01⅞	.02	.01⅞	.02
Grade 26-70	.01⅝		.01⅝	
Grade 30-70	.01¼		.01¼	
NORTH LOUISIANA—				
Grade 26-70	.01¾		.01¾	
CALIFORNIA—				
75-78 375	.04¼	.05	.04¼	.05

Note—Grades 18-55, 26-70 and 30-70 are three of 24 grades adopted by the Natural Gasoline Association of America effective January 1. The grades are based on pounds vapor pressure and amount evaporated at 140° F. See page 74 of January 7 issue for explanation of new grading system. While not exactly the same specifications apply, Grade 18-55 corresponds to the former Grade A; Grade 26-70 to former Grade AA and Grade 30-70 to former Grade BB.

KEROSENES

(All kerosenes water white)

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
41-43	.02⅝	.02¾	.02⅝	.02¾
42-44	.02¾	.02⅞	.02¾	.02⅞
NORTH TEXAS—				
40-41	.02⅝		.02⅝	
41-43	.02¾		.02¾	
‡NORTH LOUISIANA—				
41-43	.03	.03¼	.03	.03¼
42-44	.03¼	.03⅜	.03¼	.03⅜
‡ARKANSAS—				
41-43	.03	.03¼	.03	.03¼
PENNSYLVANIA—				
45	.04	.04⅛	.04⅛	.04¼
46	.04⅜	.04½	.04½	.04⅝
47	.04⅝	.04⅝	.04⅝	.04¾
CHICAGO (Based on Group 3)—				
41-43	.02¼	.02⅝	.02½	.02⅝
42-44	.02⅝	.02¾	.02⅝	.02¾
***CALIFORNIA—**				
38-40 high burning test	.03¾	.04½	.03¾	.04½
NEW YORK (Bayonne, N. J.)—				
41-43	.05½	.05¾	.05½	.05¾

*For Pacific Coast consumption.

‡For Arkansas, Louisiana and Mississippi delivery.

TRACTOR FUELS*

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
39-41 prime white	.02¼		.02¼	
38-40 light straw	.02	.02⅛	.02	.02⅛
NORTH TEXAS—				
38-40 light straw	.02	.02⅛	.02	.02⅛
CHICAGO (Based on Group 3)—				
38-40 light straw	.02⅛	.02¼	.02⅛	.02¼
PENNSYLVANIA—				
41-43 prime white	.03⅞	.04	.04⅛	.04¼

*There are no standard specifications for tractor fuels. Grades commonly sold have flash under 175° F. (open cup) and under 575° F. endpoint and less than .2 per cent sulphur. Tractor fuels are available from all Mid-Continent refining groups at prices in line with the Oklahoma market taking into consideration differentials in freight rates.

FURNACE OILS*

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
32-36 straw	.01¾	.01⅞	.01¾	.01⅞
36-38 straw	.01⅞	.02	.01⅞	.02
38-40 straw	.02	.02⅛	.02	.02⅛
39-41 prime white	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—				
38-40 straw	.02⅛	.02¼	.02⅛	.02¼
‡NORTH LOUISIANA—				
36-40	.02¼	.02½	.02¼	.02½
‡ARKANSAS—				
32-36	.02	.02¼	.02	.02¼
CHICAGO (Based on Group 3)—				
32-36 straw	.01⅞	.02	.01⅞	.02
38-40 straw	.02	.02⅛	.02	.02⅛
PENNSYLVANIA—				
40-41 prime white	.03½		.03½	
NEW YORK (Bayonne, N. J.)—				
32-36	.03½		.03½	
36-40	.04¼	.04½	.03¾	

*Above prices are for furnace oils of zero cold test, under 190° F. flash and good odor.

‡For Arkansas, Louisiana and Mississippi delivery.

GAS OIL, DIESEL OIL AND FUEL OIL

Gas oil (G.O.) quoted per gallon basis; Diesel oil and fuel oil per barrel.

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
32-36 (G.O.) cracking stock	.01	.01⅛	.01	.01⅛
U.G.I. (G.O.)	.01	.01⅛	.01	.01⅛
32-36, zero to 15 (G.O.) high flash	.01¼	.01⅜	.01¼	.01⅜
28-30, zero to 10	.45	.50	.45	.50
26-30, zero to 10	.40	.50	.40	.50
24-26	.37½	.42½	.35	.40
20-22	.27½	.32½	.25	.30
16-20	.25	.27½	.22½	.27½
Below 16	.22½	.25	.22½	.25
NORTH TEXAS—				
32-36 (G.O.) industrial	.01⅛		.01⅛	
22-26	.40	.45	.40	.45
Below 20	.30	.35	.30	.35
‡NORTH LOUISIANA—				
30-32 (G.O.) zero	.02	.02¼	.02	.02¼
18-22	.30	.40	.30	.40
‡ARKANSAS—				
28-32 (G.O.) zero	.50	.60	.50	.60
16-20	.40	.45	.40	.45
CHICAGO (Based on Group 3)—				
32-36 (G.O.) industrial	.01⅛	.01¼	.01⅛	.01¼
28-30 (zero)	.55	.60	.55	.60
22-26	.32½	.37½	.32½	.37½
18-22	.25	.30	.25	.30
Below 18	.20	.25	.20	.25

Note—Fuel oils of more than 40 cold test generally 5 to 10 cents per barrel less in all areas than shown in above tables.

‡For Louisiana, Arkansas and Mississippi delivery.

CALIFORNIA—				
30-34 (G.O.) per bbl.	.80	1.00	.85	1.00
27 plus Diesel	.75	.95	.80	.90
15-19 bunker (at tidewater)	.55	.75	.55	.75
15-19 bunker (cargo lots)	.55	.70	.55	.75
15-19 (tank cars)	.40	.70	.45	.75
GULF COAST—				
28-30 (G.O.)	.02¼	.02½	.02½	.02¾
Bunker C (bulk cargoes)	.38	.40	.40	.50
Bunker C (bunkers)	.45			
NEW YORK (Bayonne, N. J.)—				
28 plus (G.O.)	.03½	.04	.03½	.04
*28-30 Diesel	1.30		1.30	
†Bunker C	.60		.60	

*Lighterage 6½ cents per barrel.

†Lighterage 5 cents per barrel.

PETROLEUM COKE*

Prices per ton f.o.b. refineries in Chicago area.

	Mar. 1		Feb. 23	
Breeze (screenings)	3.75		3.75	
Still runs	4.75		4.75	
Lump and egg	7.00	7.50	7.00	7.50

*Refiners will absorb freight up to 80 cents a ton.

NEUTRAL OILS

(Viscosity at 100° F., and Color)

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
Zero to 10 Cold Test:				
150-3	.06¼	.06½	.06¼	.06½
180-3	.07½	.07¾	.07½	.07¾
180-4	.07	.07¼	.07	.07¼
200-3	.08½		.08½	
200-4	.08	.08¼	.08	.08¼
240-3	.09¾	.10	.09¾	.10
240-4	.09¼	.09½	.09¼	.09½
280-3	.11¼	.11½	.11¼	.11½
280-4	.10¼	.10½	.10¼	.10½
300-3.5	.11¾	.12	.11¾	.12
350-3.5	.12¼	.12½	.12¼	.12½
400-4	.12¾	.13	.12¾	.13
500-4.5	.13¼	.13½	.13¼	.13½
100-2 Paraffin Oil	.04¼	.04½	.04¼	.04½
15-30 Cold Test:				
200-3	.07¾	.08	.07¾	.08
200-4	.07½	.07¾	.07½	.07¾
240-3	.09¼	.09½	.09¼	.09½
240-4	.08¾	.09	.08¾	.09
280-3	.10¾	.11	.10¾	.11
280-4	.09¾	.10	.09¾	.10
PENNSYLVANIA—				
Viscosity at 70° F., and Color:				
150-3	.13	.13½	.13	.13½
180-3	.16	.17	.16	.17
200-3	.18	.18½	.18	.18½
220-3	.21	.21½	.21	.21½
36 Miners Neutral	.05½		.05½	
34 Neutral	.05½		.05½	
34 Sundebloom Neutral	.05		.05	
GULF COAST—				
Pale Oils:				
100-2-2½	.04½	.05	.05	.05½
200-3	.06	.06¼	.07	.07½
300-3	.06½	.07	.07¾	.08
500-3½	.08	.08½	.09	.09½
750-3½	.09	.09½	.10	.10¼
1,200-3½	.10½	.11	.12	.12¼
2,000-4	.12	.12½	.14	.14½
Red Oils:				
200-5-6	.05	.05½	.06	.06¼
300-5-6	.05½	.06	.06¾	.07
500-5-6	.06¾	.07	.08	.08½
1,200-5-6	.09½	.10	.11	.11¼
2,000-6 plus	.11	.11½	.13	.13¼
CALIFORNIA—				
Pale Oils:				
100-2½-3	.08	.08¼	.08	.08¼
200-2½-3	.08	.08¼	.08	.08¼
300-3-3½	.08½	.08¾	.08½	.08¾
350-3-4	.09	.09¼	.09	.09¼
400-3-4	.09½	.09¾	.09½	.09¾
350-3-4	.10	.10¼	.10	.10¼
550-3-4	.10½	.11	.10½	.11
Red Oils:				
200-4½-5	.08	.08¼	.08	.08¼
300-5-6	.08½	.08¾	.08½	.08¾
350-5-6	.09	.09¼	.09	.09¼
400-5-6	.09½	.09¾	.09½	.09¾
450-5-6	.10	.10¼	.10	.10¼
500-5-6	.10½	.11	.10½	.11
600-5-6½	.11½	.12	.11½	.12
700-6½ plus	.12½	.12¾	.12½	.12¾
750-6½ plus	.13	.13½	.13	.13½
900-6½ plus	.14½	.14¾	.14½	.14¾
NEW YORK (Bayonne, N. J.)—				
Paraffin Oil:				
25 pale	.10¼		.10¼	

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

28 pale	.07¼	.07¼
280 red	.12½	.12½
250 red	.11½	.11½
225 red	.10	.10
300 red	.09¼	.09¼

BRIGHT STOCKS AND STEAM REFINED STOCKS

OKLAHOMA (Group 3)—	Mar. 1		Feb. 23	
600 light green S.R.	.04	.06	.04	.06
600 dark green S.R.	.03	.04½	.03	.04½
Bright Stock:				
190-200 D	.17½	.18	.18½	
150-160 D, 0-10	.15½	.16	.16	.16½
150-160 D, 10-25	.15	.15½	.15½	.16
150-160 D, 25-40	.14½	.15	.15	.15½
150-160 E	.14¾	.15	.15	
PENNSYLVANIA—				
600 S.R.	.13	.13½	.11	.12
650 S.R.	.15	.15½	.14¼	.14½
600 Pennsylvania flash	.16	.16½	.15	.16
600 E filtered	.15½	.16	.14	.15
600 D filtered	.19½	.20	.18	.18½
Pennsylvania Grade Bright Stock:				
10-15 pour test	.25		.23	
25-30 pour test	.22	.23	.20½	.21
35 and above	.21½	.22½	.20	.20½

WAX AND PETROLATUM

(Prices per pound)

OKLAHOMA (Group 3)—	Mar. 1	Feb. 23
124-126 white crude scale	.01¾	.01¾
PENNSYLVANIA—		
At New York:		
122-124	.02⅛	.02⅛
124-126	.02⅛	.02⅛
NEW YORK (Bayonne, N. J.)—		
Refined Wax:		
120-122	.02⅝	.02⅝
125-127	.02⅞	.02⅞
130-132	.02⅝	.03⅜
133-135	.04	.04
135-137	.04⅛	.04⅛
Petrolatum in barrels in carload lots:		
Dark green	.01¾	.01¾
Amber	.02⅛	.02¼
Extra amber	.02⅝	.02⅝
Cream	.04¾	.04¾
Lily white	.05¾	.05¾
Snow white	.06¾	.06¾

EXPORT PRICES

GASOLINE

GULF COAST—	Mar. 1	Feb. 23
U. S. Motor	.04⅛ .04¼	.04½
60-62 400 endpoint	.04¼ .04⅜	.04⅝
61-63 390 endpoint	.04⅜	.04⅝
64-66 375 endpoint	.04⅜ .04½	.04⅝ .04¾
LOS ANGELES, CALIF.—		
U. S. Motor, 53-55 437 e.p.	.03¾ .04	.04 .04½
U. S. Motor, 65 octane num.	.05	.05
U. S. Motor, 67 octane num.	.05¼	.05¼
U. S. Motor, 69 octane num.	.05½	.05½
58-62 400 endpoint gasoline	.04¼ .04¾	.04½
KEROSENE		
GULF COAST—		
41-43 prime white	.04	.04¼
41 water white	.04¼	.04½
LOS ANGELES, CALIF.—		
41-43 water white	.04 .04¾	.04 .04¾
LUBRICANTS		
NEW YORK (Bayonne, N. J.)—		
600, steam refined cylinder stocks, in bbls.	.19 .20	.19 .20
650, steam refined	.22½ .23	.22½ .23
600, Pennsylvania flash	.23 .24	.23 .24
630, Pennsylvania flash	.26 .27	.26 .27
600, Warren E	.22½ .23	.22½ .23
600, Oil City E	.21½ .22	.21½ .22
Light 140-150 Bright Stocks	.28 .29	.28 .29
Dark 140-150 Bright Stocks	.27 .28	.27 .28

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a.m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea, Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.65
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.72
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).

Montebello—65 cents for all grades (14° to 25.9°).

Whittier and LaHabra—65 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

(Continued on Page 87)

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas (Nov. 2, 1931)† ..... $ .83
Corsicana heavy (Nov. 2, 1931)* ..... .49
Other fields ..... See gravity table

†Posted by Panola Pipe Line Co., Magnolia Petroleum Co., Tidal Refining Co., Sinclair Refining Co., Gulf Pipe Line Co., Atlas Pipe Line Co. *Magnolia Petroleum Co.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective December 16, 1931)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) $1.85
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.55
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) (Feb. 26, 1932) 1.50
Penna Grade Oil in Buckeye Pipe Line Lines (March 1, 1932) 1.30
Corning Grade Oil in Buckeye Pipe Line Co.'s line (Nov. 9, 1931) ..... .85
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931) ..... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

Tide Water Pipe Co.

(Effective December 16, 1931)

Bradford, Pa. $1.85
Allegany, N. Y. 1.35

Pure Oil Co.

(Effective December 16, 1931)

Cabin Creek, W. Va. $1.45
Bradford Hollow, W. Va. 1.45
Kelly's Creek, W. Va. 1.45

Pennzoil Co.

(Effective December 16, 1931)

Pennsylvania Grade Oil in National Transit Lines:

Group A $1.80
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B $1.79
Includes Titusville district.
Group C $1.78
Includes Turkey and Tidiout districts.
Group D $1.77
Includes Bear Creek and Porkey districts.
Group E $1.75
Includes Eidenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jamesson, Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts.
Price depends on length of pipe line haul to plant at Oil City.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchison Counties ..... See gravity table

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles, light (Aug. 24, 1931) ..... $ .75
Iles, heavy (Aug. 24, 1931) ..... .53
Fort Collins (Nov. 3, 1931) ..... .71
Florence (Nov. 2, 1931) ..... .65
Wellington (Nov. 3, 1931) ..... .61
Dutton Creek (Nov. 3, 1931) ..... .75
Rock Creek, Wyo. (Nov. 3, 1931) ..... .85
Frannie, light (Nov. 3, 1931) ..... .61
Frannie, heavy (Nov. 3, 1931) ..... .51
Salt Creek ..... Mid-Continent gravity table
Big Muddy (Nov. 3, 1931) ..... .83
Grass Creek (Nov. 3, 1931) 1.05
Elk Basin (Nov. 3, 1931) 1.05
Lance Creek (Aug. 24, 1931) 1.05
Poison Spider (Mar. 5, 1931) ..... .70
Notches (Mar. 14, 1927) ..... .65
Hudson (June 2, 1931) ..... .65
Lander (Mar. 5, 1931) ..... .40
Rex Lake (Feb. 22, 1930) 1.10
Osage (Apr. 15, 1931) ..... .93
Lost Soldier (Nov. 3, 1931) ..... .69
Hamilton Dome (Nov. 3, 1931) ..... .45
Greybull (Nov. 3, 1931) 1.05
Cat Creek (Nov. 3, 1931) 1.05
Pondera (Nov. 3, 1931) ..... .90
Sunburst, Mont. (Nov. 3, 1931) 1.00
Hogback, N. Mex. (Aug. 24, 1931) ..... .80
Lea County, N. Mex. (Nov. 3, 1931) ..... .50
Border, Mont. 1.55
Red Coulee, Alberta 1.55
Dry Creek, Mont. (Aug. 24, 1931) 1.00
Maljamar (Aug. 22, 1931) 1.00
Artesia-Jackson (Nov. 3, 1931) ..... .50

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro Oil & Refining Co.

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CRUDE OIL GRAVITY TABLE

Gravity	Kansas and Oklahoma 1	North and Central Texas 2	East Central Texas 3	Gray County, Texas 4	Carson and Hutchinson Counties, Texas 5	Salt Creek, Wyo. 6	North Louisiana and Arkansas 7	Gulf Coast (Tex. and La.) 8	Cameron Meadows, La. 9
Below 25 degrees	...	...	...	...	...	...	...	$.70	$.60
25-25.9 degrees	...	...	...	...	...	...	...	.71	.60
26-26.9 degrees	...	...	...	...	...	...	...	.72	.61
27-27.9 degrees	...	...	...	...	...	...	...	.73	.62
28-28.9 degrees	...	...	...	...	...	...	...	.74	.63
Below 29 degrees	$.61	$.61	$.61	...	...	$.61	$.61	...	...
29-29.9 degrees	.63	.63	.63	...	...	.63	.63	.75	.64
30-30.9 degrees	.65	.65	.65	...	...	.65	.65	.76	.65
31-31.9 degrees	.67	.67	.67	...	...	.67	.67	.77	.66
32-32.9 degrees	.69	.69	.69	...	...	.69	.69	.78	.67
33-33.9 degrees	.71	.71	.71	...	...	.71	.71	.79	.68
34-34.9 degrees	.73	.73	.73	$.61	$.56	.73	.73	.80	.69
35-35.9 degrees	.75	.75	.75	.63	.58	.75	.75	.81	.70
36-36.9 degrees	.77	.77	.77	.65	.60	.77	.77	.82	.71
37-37.9 degrees	.79	.79	.79	.67	.62	.79	.79	.83	.72
38-38.9 degrees	.81	.81	.81	.69	.64	.79	.81	.84	.73
39-39.9 degrees	.83	.83	.83	.71	.66	.79	.83	.85	.74
40 degrees and over	.85	.85	.85	.73	.68	.79	.85	.86	.75

Column 1—Led by Continental Oil Co. effective November 2, 1931, and adopted on same day by other companies excepting Magnolia Petroleum Co. and White Eagle Oil Corp. and excepting that Carter Oil Co., Gypsy Oil Co. and Pure Oil Co. started their schedule at below 25 degrees, 53 cents; 25 degrees, 55 cents; with 2 cents added for each degree upward to 40 degrees and above at 85 cents. Magnolia Petroleum Co. adopted the price schedule in Oklahoma on January 8, 1932, and the White Eagle Oil Corp. in Kansas on January 1, 1932, on oil from 29 degrees upward, but posted 52 cents for oil below 28 gravity and 54 cents for 28 gravity.

Column 2—Led by Continental Oil Co. effective November 2, 1931, and followed by other purchasers on same day excepting Magnolia Petroleum Co. which met the prices on January 8, 1932, from 29 degrees upward, posting 52 cents for oil below 28 degrees and 54 cents for 28 gravity oil.

Column 3—Humble Oil & Refining Co. on November 2, and by other buyers excepting Magnolia Petroleum Co., which met the prices from 29 degrees upward on January 8, 1932, but posted 52 cents for oil below 28 degrees and 54 cents for 28 gravity oil.

Column 4—Led by The Texas Company, November 2, followed by Humble Oil & Refining Co., Gulf Pipe Line Co. and H. F. Wilcox Oil & Gas Co. same day. Magnolia Petroleum Co., January 8, 1932.

Column 5—Led by The Texas Company, November 2, followed on same day by Humble Oil & Refining Co. and Gulf Pipe Line Co. Magnolia Petroleum Co., January 8, 1932.

Column 6—Midwest Refining Co., November 2.

Column 7—Standard Oil Co. of Louisiana, November 4, 1931; The Texas Company, Gulf Refining Co. and Louisiana Oil Refining Co. same day. Magnolia Petroleum Co., January 8, 1932.

Column 8—Led by The Texas Company, November 2, followed on same day by Humble Oil & Refining Co., Magnolia Petroleum Co., Gulf Pipe Line Co. and Sun Oil Co., but two last named companies' schedules stop at 35 degrees and above at 81 cents, and the Sinclair Refining Co., but latter company's schedule stops at 31 degrees and above at 71 cents. Magnolia Petroleum Co. applied this schedule to Lockport and Iowa, La.

Column 9—Magnolia Petroleum Co., January 8, 1932.

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns March 1.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Chicago	15.0	15.0	3.0	9.0
Decatur, Ill.	15.5	15.5	3.0	9.1
E. St. Louis	14.8	14.8	3.0	8.3
Joliet	15.5	15.5	3.0	9.1
Peoria	15.5	15.5	3.0	9.1
Quincy	15.3	15.3	3.0	8.9
Davenport, Ia.	15.6	15.6	3.0	9.4
Des Moines	15.6	15.6	3.0	8.1
Keokuk	15.6	15.6	3.0	6.4
Sioux City	15.2	15.2	3.0	9.0
Duluth, Minn.	16.6	16.6	3.0	10.0
Mankato	16.2	16.2	3.0	8.1
Minneapolis	16.3	16.3	3.0	10.0
LaCrosse, Wis.	17.3	17.3	4.0	10.1
Milwaukee	16.2	16.2	4.0	9.0
Madison	16.4	16.4	4.0	9.2
Detroit, Mich.	14.5	14.5	3.0	9.1
Grand Rapids	14.8	14 8	3.0	10.7
Saginaw	13.2	13.2	3.0	10.5
Evansville, Ind.	16.2	15.6	4.0	10.0
Indianapolis	16.4	16.4	4.0	10.2
South Bend	16.5	16.5	4.0	8.1
Fargo, N. D.	18.0	18.0	3.0	13.0
Huron, S. D.	17.4	17.4	4.0	10.8
Sioux Falls	16.9	16.9	4.0	10.5
K. C., Mo.	15.0	15.0	3.0	7.9
Springfield*	15.0	15.0	3.0	7.0
St. Louis*	14.0	14.0	3.0	8.4
St. Joseph	14.6	14.6	3.0	7.6
Wichita, Kans.	12.9	13.9	3.0	6.1
Bartlesville, Ok.	13.1	15.1	4.0	7.1

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 1½ cents or more below the price on the regular grade.

Effective November 4—New dump discount applicable on all grades of gasoline sold from tank wagon. Any tank wagon customer buying 25 gallons or more at one time will be given 1-cent discount per gallon off tank wagon price at time of delivery. Customers not under contract receive no other discount.

Effective January 1—Discounts on Q.D.A. on 600 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 2 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Dallas, Tex.	15.0	16.0	4.0	9.00
Fort Worth	15.0	16.0	4.0	8.0
Houston	12.0	15.0	4.0	9.0
San Anotnio	14.0	16.0	4.0	8.0
El Paso	12.0	14.0	4.0	11.0
Texarkana	*16.0	16.0	4.0	9.0
Muskogee, Ok.	11.0	13.0	4.0	7.0
Okla. City	13.0	15.0	4.0	7.0
Tulsa	13.0	15.0	4.0	8.0
Ft. Smith, Ark.	*16.5	16.5	5.0	*11.0
Little Rock	*17.5	16.5	6.0	9.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

*Less 2 cents to dealers.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Denver, Colo.	12.0	15.0	4.0	12.5
Pueblo	12.0	15.0	4.0	12.0
Grand Jctn.	18.0	21.0	4.0	14.5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	11.0	14.0	4.0	11.5
Butte, Mont.	17.0	20.0	5.0	16.0
Billings	20.0	23.0	5.0	14.5
Great Falls	21.0	23.0	5.0	16.0
Helena	20.0	23.0	5.0	16.0
Salt Lake, Utah	17.5	20.5	4.0	16.0
Albu'que, N. M.	17.0	20.0	6.0	14.0
Boise, Idaho	21.0	24.0	5.0	18.0
Twin Falls*	21.0	24.0	5.0	18.0

*2½-cent discount off tank wagon to dealers.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Ohio points	15.5	16.0	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Pittsburgh, Pa.	15.0	16.0	3.0	11.0
Philadelphia	14.0	15.0	3.0	11.0
Scranton	15.0	16.0	3.0	11.0
Allentown	15.0	16.0	3.0	11.0
Altoona	15.0	16.0	3.0	11.0
Erie	15.0	16.0	3.0	11.0
Dover, Del.	15.0	16.0	3.0	11.0
Wilmington	15.0	16.0	3.0	11.0
Springf'd, Mass.	15.5	16.5	3.0	8.5
Worcester	15.3	16.3	3.0	8.5
Boston	14.5	15.5	3.0	9.5
Providence, R.I.	13.5	14.5	2.0	8.5
Hartford, Conn.	14.5	15.5	2.0	10.0
New Haven	14.6	15.6	2.0	10.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atlanta, Ga.*	19.5	19.5	6.0	9.0
Augusta	20.0	21.0	6.0	14.0
Macon	20.0	20.0	6.0	12.0
Savannah	19.0	19.0	6.0	11.0
Birm'ham, Ala.	20.5	20.5	6.0	10.0
Mobile	20.0	20.0	5.0	10.0
Montgomery	21.5	21.5	6.0	13.5
Jackson, Miss.	16.0	17.0	5.5	11.5
Vicksburg	18.0	16.5	5.5	8.0
Jack'ville, Fla.	19.0	19.0	7.0	11.0
Miami	21.0	22.0	7.0	13.0
Pensacola	20.0	20.0	7.0	13.0
Tampa	19.0	19.0	7.0	14.0
Lexington, Ky.	17.0	18.0	5.0	10.0
Covington	16.0	17.0	5.0	10.0
Louisville	15.0	16.0	5.0	10.0
Corbin	18.0	19.0	5.0	15.0

A third grade "Kyso Green" is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 3 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

*An additional discount of 1 cent is offered to dealers effective October 6.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atl'tic City, N.J.	15.7	16.2	3.0	11.5
Newark	14.7	15.2	3.0	8.5
Annapolis, Md.	16.2	16.7	4.0	10.0
Baltimore	15.4	15.9	4.0	8.0
Cumberland	17.2	17.7	4.0	12.0
Wash'g'n, D. C.	13.9	14.4	2.0	10.0
Danville, Va.	18.0	18.5	5.0	11.8
Norfolk	16.5	17.0	5.0	10.3
Petersburg	17.5	18.0	5.0	11.3
Richmond	16.5	17.5	5.0	10.7
Roanoke	18.2	18.7	5.0	12.0
Charles'n, W.Va.	16.7	17.2	4.0	11.5
Parkersburg	15.4	15.9	4 0	10.2
Wheeling	16.6	17.1	4.0	11.4
Charlotte, N. C.	16.0	17.0	6 0	10.7
Hickory	19.8	20.3	6 0	12.6
Mt. Airy	19.7	20.2	6 0	12.5
Raleigh	19.4	19.9	6 0	12.2
Salisbury	19.7	20.2	6 0	12.5
Charleston, S.C.	17.5	18.0	6.0	10.3
Columbia	19.4	19.9	6.0	12.2
Spartanburg	19.7	20.2	6.0	12.5

* Two and one-half cents per gallon discount off tank wagon price of gasoline to dealers except Washington, D. C., and States of Maryland and New Jersey, where discount is 2½ cents.

Prices shown above are for standard gasoline.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	12.3	14.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

PACIFIC COAST TERRITORY

Standard Oil Co. of California*

	Gasoline			Kero.
	Tank truck	Posted retail	Incl'ds tax	tank wagon
Fresno	12.5	16.5	3.0	17.0
San Francisco	12.5	16.5	3.0	15.5
Los Angeles	12.0	16.0	3.0	15.5
Reno, Nev.	16.0	20.0	4.0	19.0
Portland, Ore.	14.0	18.0	4.0	16.5
Seattle, Wash.	15.0	19.0	5.0	16.5
Tacoma	15.0	19.0	5.0	16.5
Spokane	18.5	22.5	5.0	20.5
Phoenix, Ariz.	14.5	17.0	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
N. Orleans, La.	16.0	16.0	6.0	†10.0
Baton Rouge	16.5	16.5	5.0	†12.0
Alexandria	16.0	16.0	6.0	†12.0
Lafayette*	17.5	17.5	6.0	†10.0
Lake Charles*	16.5	16.5	6.0	†12.0
Shreveport	14 5	14.5	5 0	†12.0
Knoxville, Tenn.	21.0	21.0	7.0	13.5
Memphis	17.5	17.5	7.0	11.0
Chattanooga	20.5	20.5	7.0	11.0
Nashville	20.0	20.0	7.0	12.5
Bristol	19.5	19.5	7.0	14.0
Lt. Rock, Ark.	17.5	17.5	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Kerosene prices in Louisiana include 1 cent tax except New Orleans where tax is 2 cents.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Omaha	14.9	15.9	4.0	9.25
McCook	17.0	17.0	4.0	7.5
Norfolk	16.75	17.75	4.0	9.75
N. Platte	17.75	18.75	4.0	10.50
Scottsbluff	17.0	17.0	4.0	9.0

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade), 1 cent off normal service station price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6.23
V.M.P. naphtha	12.7	7.73
Cleaners' naphtha	15.2	9.23
Stanisol	15.2	9.23

Tank wagon prices f.o.b. Chicago January 6, 1932. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.ob. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more, 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial), 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Standard Oil Co. of Louisiana effective February 20 gasoline tank wagon and service station prices 2 cents at Shreveport, La. Same company effective February 25 reduced gasoline tank wagon and service station prices one-half cent at Bristol, Tenn.

Standard Oil Co. of Indiana effective February 24 gasoline tank wagon price one-half cent at Grand Rapids, Mich.

CRUDE OIL PRICE CHANGES

The Joseph Seep Purchasing Agency increased the price of Pennsylvania Grade crude in Eureka Pipe Line Co.

(Continued on Page 88)

CRUDE OIL PRICES

(Continued from Page 77)

WEST TEXAS

Iatan and Westbrook..Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .50
Lea County, N. Mex.‡ ..... .50
Toborg, Pecos County, Aug. 25, 1931†. .35

*The Texas Company, November 2, 1931; Magnolia Petroleum Co., Humble Oil & Refining Co., Gulf Pipe Line Co., same day. †Shell Petroleum Corp. ‡Humble Oil & Refining Co., The Texas Company, November 2, 1931.

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers.....
.....See gravity table
Jennings, La. (Nov. 2, 1931)* ..... $ .45
Lockport, La. (Aug. 27, 1931)† .....
.....See Gulf Coast gravity table
Refugio, light.....See gravity table
Refugio, heavy (Nov. 2, 1931)‡ ..... .75
Markham (Nov. 2, 1931)§ ..... .67
High Island (Nov. 2, 1931)¶ ..... .45

*Gulf Refining Co. †Magnolia Petroleum Co. ‡Humble Oil & Refining Co. §The Texas Company. ¶Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) (Nov. 4, 1931) ..... $ .55
Urbana, Ark. .....See note below
Bellevue, La. (June 3, 1931) ..... .25
Urania, La. (Nov. 2, 1931) ..... .50
Calion, Ark. (Aug. 22, 1931) ..... .52
East El Dorado, Ark. (Nov. 4, 1931) .. .55
Stephens, Ark., below 29° (Aug. 24, 1931) ..... .41
Stephens, Ark., 29° and above (Aug. 24, 1931) ..... .44
Other fields.....See gravity table

Note—Smackover, all grades, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., Bellevue posted by Magnolia Petroleum Co.; Urania by H. L. Hunt, Inc., and Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.; Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Nov. 2, 1931)‡ ..... $ .60
Luling (Nov. 2, 1931)† ..... .40
Mirando (Nov. 2, 1931)† ..... .75
Pettus (Nov. 2, 1931)* ..... .55
Salt Flat (Nov. 2, 1931)* ..... .60
Thrall§ .....
Lytton Springs (Lockhart) .See gravity table
Dobrowolski‖ .....
Same as Mid-Continent gravity scale up to and including 38-38.9°.
Somerset¶ .....
Same as Mid-Continent gravity scale up to and including 38-38.9°.

‡The Texas Company. *Humble Oil & Refining. †Magnolia Petroleum Co. §Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective November 3, 1931)

Lima $1.00
Wooster 1.15
Illinois ..... .95
Indiana ..... .60
Princeton ..... .95
Plymouth .....Shut in
Western Kentucky ..... .90
Midland, Mich. (Oct. 9, 1931)* ..... .55
Dundee, Mich.† .....
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale
Upper and Lower Traverse Sands, Mich.† ....Same as Mid-Continent gravity scale
Somerset, Ky. (Nov. 4, 1931) ..... .80
Hart County, Ky. (Jan. 18, 1932)§ ..... .60

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. §Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and delivered through own pipe line.

MEXICO

Panuco* ..... $ .45

*F.o.b. ship, based on January transactions and exclusive of production and export taxes and bar dues.

CANADA

Ontario (Nov. 3, 1931):
Petrolia* $1.90
Oil Springs* 1.9
Alberta (Aug. 24, 1931):
Turner Valley†:
Crude oil 45-45.9 ..... 2.
Crude oil 50 and above ..... 2.
Crude naphtha ..... 3.
Discolored naphtha 2.83

*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

Of Interest to Sales Departments

December Gasoline Consumption 2.3% More Than Year Ago

Gasoline consumption in 47 states and the District of Columbia for the month of December, 1931, as indicated by reports made by wholesalers and dealers in the various states, under provisions of the gasoline tax laws or gasoline inspection laws, totaled 1,123,894,000 gallons, compared with 1,098,387,000 gallons in December, 1930, an increase of 25,507,000 gallons, or 2.3 per cent. Daily average consumption for December, 1931, was 36,255,000 gallons compared with a daily average of 40,375,000 gallons in November, 1931, a decrease in daily average during December of 10.2 per cent.

Gasoline consumption in these 47 states and the District of Columbia for the 12 months ending with December, 1931, amounted to 15,048,271,000 gallons, compared with 14,450,484,000 gallons for the corresponding period of 1930, an increase of 597,787,000 gallons, or 4.1 per cent.

The figures giving the quantity of gasoline sold or offered for sale, as reported under various laws, follow. In some cases they are gross figures before deductions allowed for small quantities of gasoline reshipped or sold for other than taxable use, the tax upon which, if paid, is subsequently refunded. All figures are subject to revision:

GASOLINE CONSUMPTION BY STATES, DECEMBER, 1931

	Month of Dec., 1931 (gallons)	Dec., 1930 (gallons)
Alabama	11,724,000	13,390,000
Arizona	6,056,000	6,497,000
Arkansas	8,696,000	10,686,000
Colorado	10,558,000	10,488,000
Connecticut	18,547,000	17,061,000
Delaware	2,917,000	2,816,000
District of Columbia	7,913,000	6,443,000
Florida	20,455,000	21,213,000
Georgia	17,704,000	18,234,000
Idaho	3,217,000	3,578,000
Illinois	91,947,000	72,692,000
Indiana	35,127,000	*35,544,000
Iowa	27,122,000	26,670,000
Kansas	24,348,000	26,153,000
Kentucky	13,292,000	12,893,000
Louisiana	15,064,000	14,527,000
Maine	6,998,000	6,985,000
Maryland	14,604,000	14,957,000
Massachusetts	44,943,000	41,998,000
Michigan	61,589,000	57,316,000
Minnesota	27,434,000	25,584,000
Mississippi	19,379,000	9,491,000
Missouri	39,803,000	35,750,000
Montana	3,667,000	4,707,000
Nebraska	13,767,000	16,370,000
Nevada	1,527,000	1,335,000
New Hampshire	4,394,000	4,010,000
New Jersey	43,297,000	40,942,000
New Mexico	3,503,000	4,414,000
New York	123,640,000	114,259,000
North Carolina	23,005,000	22,053,000
North Dakota	4,654,000	4,096,000
Ohio	72,116,000	70,193,000
Oklahoma	22,021,000	23,050,000
Oregon	11,135,000	11,913,000
Pennsylvania	83,797,000	92,808,000
Rhode Island	7,831,000	6,870,000
South Carolina	9,790,000	9,785,000
South Dakota	7,153,000	8,129,000
Tennessee	17,011,000	16,936,000
Texas	62,325,000	70,232,000
Utah	3,397,000	3,792,000
Vermont	3,131,000	2,966,000
Virginia	20,049,000	18,056,000
Washington	18,158,000	19,963,000
West Virginia	10,982,000	9,953,000
Wisconsin	31,862,000	29,046,000
Wyoming	2,245,000	2,443,000
Total	1,123,894,000	1,098,387,000
Daily average	36,255,000	35,432,000
Increase over previous year:		
Amt. of increase	25,507,000	.....
Percentage increase over daily average	2.3%	.....
	Quarter ending Dec. 31, 1931	Dec. 31, 1930
California	328,590,000	336,140,000

*Revised. †Estimated.

NEW ORLEANS BUYS FUEL

Contract for a supply of 100,000 bbls. of fuel oil was awarded by the New Orleans Sewerage and Water Board to the Standard Oil Co. of Louisiana at a price of 39.875 cents a barrel.

TO PROTEST DUTY ON MINERAL OILS

NEW YORK, Mar. 1.—The recent ruling of the Treasury Department placing imported mineral oil in the medicinal category, and as such subject to an import duty of 25 per cent, has aroused widespread opposition among importers and manufacturing consumers.

The Treasury Department's action will be protested on the ground that a large percentage of mineral oil imports is used in the manufacture of cosmetics and for other industrial purposes.

While imported mineral oil is generally regarded as "Russian mineral oil," and is marketed under that designation, the fact is that practically all imports of this oil come from a refinery in Belgium, and the Schliemann and Juilis Schindler oil works, the latter two being located in Hamburg, Germany. Russian mineral oil, as marketed in the United States, is refined from Russian "mazout" or "solar oil distillate," and almost the entire cost of production is represented in the refining and handling costs at the Belgian and German refineries.

The present ruling of the Treasury Department marks the second serious setback European refiners of mineral oil have experienced in the past year, the internal disturbances in India having practically ruined that market, which was a large consumer of mineral oil for use both in cooking and for anointing in religious rites.

The protest of American importers, it is understood, will be supported by American industrial consumers who have been using the Russian oil, which has a higher viscosity than the domestic product.

The principal American marketers of domestic mineral oils are Standard Oil Co. (New Jersey), L. Sonneborn Sons, Inc., and Standard Oil Co. of Indiana.

BEATY FAVORS SALES TAX

NEW YORK, Feb. 25.—Recommending that revenue for balancing the Federal budget be obtained by leving a manufacturers' sales tax rather than a Federal gasoline tax, President Amos L. Beaty, of the American Petroleum Institute, revealed that imposition of both taxes would mean an assessment on gasoline of more than 127 per cent. President Beaty said that a manufacturers' tax at the 2 per cent rate, as now being considered by the House Ways and Means Committee, would be a source of revenue that would grow with the recovery of business, while a Federal tax upon gasoline would tend to accelerate a decline in consumption. He expressed the opinion that the states, facing financial emergencies of their own, would not welcome Federal invasion of the gasoline tax field and that industries must regard the policy of taxing single commodities as a menace.

Today was observed by consumers and marketers of gasoline as "Gasoline Tax Day," the thirteenth anniversary of the effective date of Oregon's original 1 cent per gallon levy, the first gasoline tax imposed in this country, and hundreds of telegrams and letters were sent to Congress by consumers and marketers of gasoline protesting imposition of the Federal tax.

C. L. KERR DIES

HOUSTON, Tex., Feb. 29.—C. L. Kerr, 65 years old, district sales manager for the Gulf Refining Co. in Texas for 25 years, was found shot to death in his office in the Gulf Building, Houston, Sunday, February 28. He had been in poor health for several weeks. Burial services will be held Wednesday.

GASOLINE AND OIL COST LESS THAN 25% OF TOTAL

Gasoline and oil represent less than 25 per cent of the total cost of operating an automobile according to a survey prepared by the American Road Builders Association. As part of an investigation to determine what poor roads are costing motorists the association reports:

"From detailed cost records reported on about 800 automobiles operated in various parts of the United States, figures were prepared taking all factors into consideration, showing the average cost of automobile operation over all types of surfacing to be in cents per mile:

Light fours	6.02
Medium fours	6.42
Heavy fours	7.20
Light sixes	7.38
Medium sixes	8.40
Heavy sixes	9.45

"Among the various items of operating cost, road condition is shown to have no effect on license, garage, interest, and insurance. The increase in cost of maintenance and in depreciation of automobiles as the type of road becomes poorer is in somewhat the same ratio as the increase in gasoline consumption. In cost of tires and tubes comes the greatest increase, and it is estimated that where $1 is expended for this item on improved roads of high type the cost is almost triple on roads without improvement.

"The division of cost items on an imaginary 'average' automobile, based on annual mileage of 11,000, is shown as follows:

Item of cost—	Cents per mile
Gasoline	1.31
Oil	0.22
Tires and tubes	0.64
Maintenance	1.72
Depreciation	1.39
License	0.14
Garage at $4 per month	0.44
Interest at 6 per cent	0.36
Insurance (fire, theft, tornado)	0.21
Total cents per mile	6.43

BRITISH-AMERICAN EXPANDS

CHATHAM, Ontario, Feb. 27. — The annual statement of British-American Oil Co. of Toronto and Montreal, issued this week, shows the greatest development in the history of the company. According to the statement of President A. L. Ellsworth, the capacity of the Toronto refinery was increased and a new modern refinery at Montreal East, Quebec, was completed in August.

The employment of water transportation, which has been considered for some years, was undertaken, tankers being purchased and storage erected for crude oil at Toronto and Montreal, with cargo bulk plants for finished products at various points on the Great Lakes. Some bulk storage plants were provided at Quebec points as outlets for the Montreal East refinery, and a limited number of service stations were erected in cities where the company was not adequately represented.

DIESEL REPLACES STEAM

NEW YORK, Feb. 29.—Satisfactory results have been derived from the operation of a Diesel-electric train service between San Sebastian and Pamplona during the past two years, according to a report to the Spanish Railway Council.

Operating costs by Diesel-electric have been slightly less than half of the cost of steam traction, the cost per train-kilometer having been 0.711 pesetas for the Diesel-electric, as against 1.536 pesetas per train-kilometer for steam.

Capital Scene of Much Tax Dodging On Gasoline Sales

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 27.—Bootlegging of gasoline is rampant in the District of Columbia, it is reported here. The extent of tax evasion by sidewalk gasoline vendors from unmarked tank wagons is not known. Strangely enough, with all of the discussion going on here with the object of increasing revenue for the local government no one has previously entered complaint about the daily theft of public funds by reason of the sale of large amounts of gasoline without payment of the tax of 2 cents a gallon.

The attention of Sen. Arthur Capper, chairman of the Senate Committee on the District of Columbia, has been called to this tax evasion and he is now beginning an inquiry which will result in having the district commissioners make a thorough investigation of conditions here.

There have been no arrests made for the sale of gasoline without payment of the tax and no attention is being paid by the local authorities to this traffic so far as the writer can learn. Senator Capper will see that some attention is paid to this bootlegging traffic and the facts, so far as they can be ascertained, will be made public, probably before the committee has a hearing on the house bill providing for an increase of the gasoline tax from 2 to 4 cents.

Just why no one has ever taken account of this tax evasion is not known. The District of Columbia code provides a heavy penalty for this offense.

Personal inquiry by the writer has shown that a gasoline tank wagon in the northern section of the city has exhibited a large sign marked "Gasoline 11 cents a gallon," there being no identifying name on the tank which stood for trade at the sidewalk of a much-traveled street. Two men stood by to serve the gasoline.

Out near the Soldiers' Home on a well-traveled thoroughfare much patronized by people coming into the capital from Maryland where the gasoline tax is 4 cents a gallon, two tank wagons standing at the sidewalk have long been doing a good business, their advertisements showing a price of 11 and 12 cents a gallon. Their cut rate just about represents the amount of the tax.

While there has been no judicial proceeding to determine all the facts about bootlegging that has long gone on here according to the understanding of those who have observed these curbside tank wagons the circumstances point to a thriving business that has continued for a considerable length of time.

GOVERNMENT AWARDS CONTRACT

NEW YORK, Feb. 27.—Contracts have been awarded by various government agencies for petroleum products as follows:

Power Oil Co., Conshohocken, Pa., 47,250 pounds of grade B water white benzine, for Air Corps, Wright Field, Ohio, at 3.85 cents per pound; Shell Eastern Petroleum Products Co., 60,000 gallons of fuel oil distillate, 3.75 cents per gallon, for Army Quartermaster, Brooklyn, N. Y.; Fiske Brothers Refining Co., New York, 2,700 pounds of refrigerant base paraffin oil, at 8 cents per pound, for Picatinny Arsenal, N. J.; Standard Oil Co. of New Jersey, 6,050 gallons of paraffin oil, 9.8 cents, for Picatinny Arsenal, N. J.; Atlantic Refining Co., 8,000 gallons of quenching oil, at 6.885 cents per gallon, for Frankford Arsenal, Pa.

Oil Securities On Sounder Basis

Market Recovery Retarded by Sharp Gain in Gasoline Holdings. Renewed Confidence Indicated by Support of Leaders

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 29.—Fundamentally the market for petroleum securities showed a continued trend toward firmer ground during the past week, and public buying, which has been hanging over the market as a potential bullish factor for some weeks, has made its appearance in a limited way. A good deal of accumulation of some of the sounder dividend-paying oils has apparently started A constructive feature during the past week has been the manner in which a number of key issues have penetrated the resistance levels encountered earlier in the year.

Further improvement in the oils has been checked by the continued gains in gasoline stocks, and progress in the petroleum group is now marking time pending further restriction efforts by the refining branch.

A number of the market leaders on both the "big board" and the Curb have come in for considerable buying support in anticipation of an early definite turn in petroleum market conditions, among the most active issues being Standard of New Jersey, Standard of California, Socony-Vacuum, Standard of Indiana, Atlantic Refining, Humble, South Penn, Standard of Nebraska, Standard of Ohio, National Transit, Southwest Pennsylvania Pipe Line and Chesebrough Manufacturing. In the pipe lines National Transit in particular has shown a marked recovery, coming back from the low of 5 established some time ago to a high of 10½.

Standard Dividends

Cash dividend payments by the companies of the Standard Oil group in the the first quarter of 1932 are estimated at $46,717,367, compared with $48,530,230 in the fourth quarter of 1931 and $63,101,997 in the first quarter of 1931, according to records compiled by Carl H. Pforzheimer & Co. Two companies have not yet taken action on their dividends for the first quarter but in the present compilation regular payments are assumed.

The decline in payments in the first quarter of this year compared with the same period of 1931 reflects in part the passing of the dividend by Prairie Pipe Line Co. which paid $3,037,000 in the 1931 quarter and a reduction in payments by several other companies. Standard Oil Co. of California reduced the quarterly dividend rate from 62½ cents to 50 cents a share in the current quarter while Standard Oil Co. of Indiana reduced the rate from 50 cents to 25 cents quarterly in the third quarter of 1931.

In the pipe line group regular payments were made in the first quarter of this year by all but one company and extra cash disbursements on capital stock reduction account were made by New York Transit Co. and Northern Pipe Line Co. The extra payment by New York Transit amounted to $500,000, while that of Northern Pipe amounted to $800,000.

Payments by quarters for the past few years follows:

	1st quarter	2nd quarter	3rd quarter
1932 ...	$46,717,367	.....	.....
1931 ...	63,101,997	$57,843,667	$51,263,688
1930 ...	66,687,168	68,555,901	68,271,015
1929 ...	63,101,701	66,053,389	65,426,981
		4th quarter	Full year
1931		$48,530,230	$220,739,582
1930		83,012,644	286,526,728
1929		75,063,856	269,645,927
1928		62,050,357	218,740,335

Houston Oil

Houston Oil Co. of Texas and Houston Pipe Line Co. report consolidated net loss of $356,484 for 1931, after depreciation, depletion, interest, taxes and other charges. This compares with net earnings of $1,655,336 in 1930, equal, after the 6 per cent preferred dividends, to $1.02 a share on 1,098,618 shares of common.

Barnsdall

Barnsdall Corp. plans to carry all investments in oil and gas leases on its consolidated balance sheet at $1, if stockholders at special meeting March 22 approve reduction in par value of the stock to $5 from $25. Change in par would permit transfer from capital account to surplus of $45,175,580.

Stockholders will also be asked to approve reclassification of the company's A and B common stock into one class of common.

E. B. Reeser, president, in explaining the move to stockholders, points out that with oil and gas leases of the company carried on the balance sheet at $1, the uncertainty of calculating depletion will be eliminated. The basis for such a charge against earnings is purely relative, as engineers' reports on recoverable reserves of oil and gas are, at best, a fair estimate.

Under the new plan the company will charge all lease purchases to current earnings, instead of capitalizing them and charging depletion out of earnings. Charges for property abandonment will also be eliminated in future earnings statements, which will, as nearly as possible, be a statement of cash earnings. During the past five years the company has charged against its earnings $10,290,611 for depletion and property abandonment. The write-off will in no way affect taxation, Mr. Reeser says.

Barnsdall now has 2,258,779 shares of stock outstanding.

The Texas Corporation

The Texas Corporation has declared a quarterly dividend of 25 cents a share, placing the stock on a $1 annual basis, compared with 50 cents quarterly, or $2 a share annually, previously paid. In May, 1931, the rate was reduced from 75 to 50 cents quarterly. The current distribution is the smallest dividend paid by the company in the past 30 years.

Prior to the four-to-one splitup of the Texaco stock in 1930, dividend payments ranging from $5 to $17 in cash annually were made, besides occasional special and stock dividends. From 1920 to May of last year dividends were paid at the rate of $3 annually.

The present disbursement is payable April 1 to stock of record March 4.

Standard of Kansas

Under a new agreement the board of directors of the Standard Oil Co. of Kansas will be reorganized. Three members of the new board will be nominated by the stockholders' committee, and two by the present management. The directors nominated by the stockholders' committee are C. B. Wrightsman, L. T. Barneson of California and A. H. Bunker of New York. The two latter will succeed E. W. Evans of Wichita, Kans., and E. A. Metcalf of Neodesha, Kans. A. S. Hopkins, president of the company, and E. A. Warren, vice president, both of Neodesha, were nominated by the present management for the two other positions on the new board. Indorsed jointly by both factions, the nominations will be submitted to the annual meeting of stockholders on March 9.

Atlantic Refining

Atlantic Refining Co. reports for 1931 net income after charges, costs, taxes, depreciation, etc., of $518,749, equal to approximately 19 cents a share on 2,692,642 shares of common, compared with $2,742,688 net, or $1.02 a share, in 1930. The 1931 net is about the same as shown in the company's preliminary statement issued some time ago, and includes a nonoperating income item of $1,347,604, representing the proceeds of the sale of Atlantic's interest in Iraq Petroleum Co.

Union Oil

Union Oil Co. of California reports for 1931 net income of $3,054,913 after charges, a decline of $6,550,084 from the 1930 net of $9,604,997. The 1931 net was equal to approximately 70 cents per share, as compared with $2.19 a share on the common in 1930. Current assets as of December 31 totaled $52,634,790 and current liabilities $4,959,342, compared with $70,075,583 and $8,247,103 respectively, at the close of 1930. Cash and marketable securities on December 31, last, totaled $16,763,588, a decline of $5,833,197 from the $22,596,785 on December 31, 1930.

Pipe Lines

Northern Pipe Line reports net credit to surplus for 1931 of $131,075 before dividends, as compared with $110,512 before dividends in 1930. Dividends paid last year were $140,000 against $160,000 in 1930.

Indiana Pipe Line Co. reports for 1931 net income of $353,637, after taxes and depreciation, equivalent to $1.17 per share on 300,000 shares of stock, as compared with $747,764 earned in 1930.

Southern Pipe Line Co. reports for 1931 net profit of $179,008, after charges, equal to $1.79 a share earned on 100,000 shares of stock. This compares with net of $243,582, or $2.43 a share, in the previous year.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

May 27	18.35	Oct. 14	16.42
June 3	18.00	Oct. 21	17.58
June 10	19.62	Oct. 28	16.80
June 17	19.23	Nov. 4	15.86
June 24	22.33	Nov. 11	18.76
July 1	22.32	Nov. 18	17.60
July 8	21.24	Nov. 25	16.68
July 15	19.79	Dec. 2	16.09
July 22	21.33	Dec. 9	15.38
July 29	20.68	Dec. 16	12.60
Aug. 5	20.80	Dec. 23	12.06
Aug. 12	21.00	Dec. 30	12.31
Aug. 19	24.25	Jan. 6	12.69
Aug. 26	23.26	Jan. 13	13.63
Sept. 2	22.30	Jan. 20	13.14
Sept. 9	20.28	Jan. 27	12.79
Sept. 16	18.30	Feb. 3	13.19
Sept. 23	17.64	Feb. 10	12.02
Sept. 30	15.83	Feb. 17	13.24
Oct. 7	15.83	Feb. 24	13.45

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Feb. 20)

1931 High	1931 Low	Week ending Feb. 20 Sales	Week ending Feb. 20 High	Week ending Feb. 20 Low	Close Feb. 24	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
⅛	⅛	No sales	..	..	..	Atlantic Lobos		499,448	N.P.	....	5-28-30	..	..	..	..	1	¼
6¼	6	No sales	..	..	..	Borne Scrymser		$1,000,000	$25	....	10-15-30	56½	44½	46½	25	25	11¼
35	32	300	33	32	..	Buckeye Pipe Line		$10,000,000	$50	$1Q	3-15-32	76	53	74½	55	69	39⅞
85	75	300	85	83	..	Chesebrough Mfg.		$3,000,000	$25	$1Q‡	12-30-31	161	117	210	130	184⅞	104¼
2¼	1¾	2,800	2¼	2	2⅛	Creole Petroleum	(sh)	5,977,872	N.P.	....	.....	17½	9½	11¾	5⅜	7⅞	3
30	23	50	30	30	..	Eureka Pipe Line		$5,000,000	$100	$1Q	2- 1-32	88	64½	70½	40	54¾	26
46⅞	42⅜	1,700	46⅞	45	..	Humble Oil & Refining		$74,103,300	$25	50cQ	1- 1-32	114¾	59½	128	74¼	119	57¼
9	7⅝	3,800	8⅞	8¼	9	Imperial Oil of Canada (new)	(sh)	25,421,768	N.P.	12½cQ	12- 1-31	104	56¾	41	22	30	15
7½	6½	600	7½	6⅞	7⅛	Indiana Pipe Line (new)		$3,000,000	$10	25cQ	2-15-32	91⅞	74⅜	41⅞	26	41	14½
10⅛	8¾	10,600	9⅝	9¼	9⅝	International Petroleum (new)	(sh)	14,247,088	N.P.	25cQ	12-15-31	55	35	30⅜	15	24	11⅜
10½	6⅞	700	10½	9½	9⅞	National Transit		$6,362,500	$12.50	25cQ	12-15-31	32⅜	19⅜	25½	10⅛	22⅜	11½
4	3	200	4	3¾	3½	New York Transit		$1,000,000	$5	10cQ	4-15-32	75	38½	17½	10	21⅜	10½
4¾	3¾	1,600	4½	4¼	..	Northern Pipe Line		$2,000,000	$50	$2SA	1- 2-32	69	56½	63	41	54	26¼
6	5¼	No sales	..	..	..	Penn Mex Fuel		$10,000,000	$25	50c	10-31-31	84	28	44½	20	32	12
12⅜	9⅝	1,200	12⅜	9¾	..	South Penn Oil		$30,000,000	$25	25cQ	12-31-31	71⅞	36¾	60¼	35⅛	45⅞	16⅛
9	8	No sales	..	..	..	Southern Pipe Line		$1,000,000	$10	50cQ	3- 1-32	19	15	22½	13	20⅞	8⅝
33	32	No sales	..	..	..	Southwest Pennsylvania Pipe Line		$1,750,000	$50	$1Q	12-31-31	102	70	70	60	64	32
16⅞	14	27,200	16½	15¼	15¾	Standard Oil of Indiana		$348,175,069	$25	25cQ	3-15-32	95⅞	70⅞	63	45	59⅞	30
14⅞	12	1,600	14	13¼	13⅜	Standard Oil of Kentucky		$25,654,516	$10	40cQ	12-31-31	179¾	122¼	46⅞	29	40½	18⅝
19	15¾	300	18½	17	..	Standard Oil of Nebraska		$4,649,225	$25	50cQ	3-21-32	54⅞	39⅞	50¼	40	48⅞	34⅝
28⅛	23¾	250	26	26	..	Standard Oil of Ohio		$14,000,000	$25	62½cQ	1- 2-32	134	71	129	60	108½	43¼
1¾	⅛	No sales	..	..	..	Swan-Finch Co.	(sh)	34,480	$25	....	1-15-29	23¼	16	18	10	10	4

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.
(Complete record week ending Feb. 20)

1931 High	1931 Low	Week ending Feb. 20 Sales	Week ending Feb. 20 High	Week ending Feb. 20 Low	Close Feb. 24	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
½	¼	900	⅜	¼	..	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
8⅞	8½	100	8½	8½	..	British American Oil Corp.		1,311,321	N.P.	20cQ	1- 2-32	55	32¾	62	7⅞	23	13⅜
⅝	¼	400	½	½	..	Carib Syndicate		$131,250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
6⅞	5¼	77,400	6⅞	5⅞	6⅜	Cities Service	(sh)	24,290,359	N.P.	30cA§	2- 1-32	90⅞	54	68⅛	20	44¼	13
52	44¼	2,500	51⅝	49⅛	51½	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	2- 1-32	103¼	94½	98¾	84	93⅞	78¼
⅛	1/16	200	⅛	⅛	..	Colombia Syndicate		$2,000,000	$1	....	.....	3¼	.76	2	½	¾	⅛
1	1	No sales	..	..	..	Consolidated Royal		$5,527,875	$10	5cQ	1-25-32	8⅞	6¼	11⅛	2½	5⅞	2
½	⅜	600	½	⅜	..	Crown Central		.....	....	....	.....	..	..	..	..	..	..
2⅛	1⅝	No sales	..	..	..	Darby Petroleum (new)		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
2⅛	1½	200	1⅞	1⅞	..	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
		No sales	..	..	..	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
32	25⅜	7,000	31½	29¼	28	Gulf Oil Corp.	(sh)	4,504,921	$25	....	10- 1-31	165	101⅛	209	115	166⅞	58½
¼	⅛	2,600	1/16	⅛	..	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1¾	⅜
½	⅜	100	⅜	⅜	½	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
½	¼	100	1/16	1/16	..	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
2⅛	1½	No sales	..	..	..	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
9¼	7¾	2,600	8¼	8	7⅞	Lone Star Gas	(sh)	5,000,000	N.P.	22cQ	12-31-31	69⅛	48½	67⅞	28	55⅞	19⅝
⅛	1/16	7,400	⅛	1/16	⅛	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	½	½	⅛
5⅞	3¾	700	5½	4¼	5⅛	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38½	14	16	3
2	2	100	2	2	..	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1¾
		No sales	..	..	..	Mountain & Gulf		$4,000,000	$1	....	4-15-31	1⅜	.76	1½	½	¾	⅜
3	2¼	200	2⅝	2½	2⅝	Mountain Producers		$1,682,182	$10	20cQ	1- 2-32	28⅞	19½	22⅞	7	12⅛	3¾
⅝	⅜	No sales	..	..	..	New Bradford Oil		$1,095,291	$5	....	4-15-31	5⅝	4¼	5	2½	3½	1⅛
⅞	⅝	100	⅝	⅝	..	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
1	⅝	No sales	..	..	1	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
⅛	1/16	4,700	⅛	⅛	1/16	Pandem	(sh)	489,875	N.P.	....	.....	6	2⅛	3½	½	2½	¼
½	¼	500	½	½	..	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅞
½	⅜	600	⅜	⅜	..	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4⅜	8½	1⅛	5⅜	1
1	1	No sales	..	..	..	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	2	8⅝	2
⅜	⅛	100	⅜	⅜	..	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	7¼	5½	5⅞	1⅞	2½	½
3⅞	3⅛	1,200	3¾	3½	..	Salt Creek Producers	(sh)	1,496,859	$10	25c	2- 1-32	35	23⅛	25⅞	9	15¼	5¼
½	¼	900	1/16	⅜	1/16	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	..	..	12	5⅝	10	2
½	1/16	No sales	..	..	⅜	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9⅛	4¾	6½	1¾	4½	⅜
2	1⅛	No sales	..	..	..	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
⅜	¼	1,600	¼	¼	¼	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

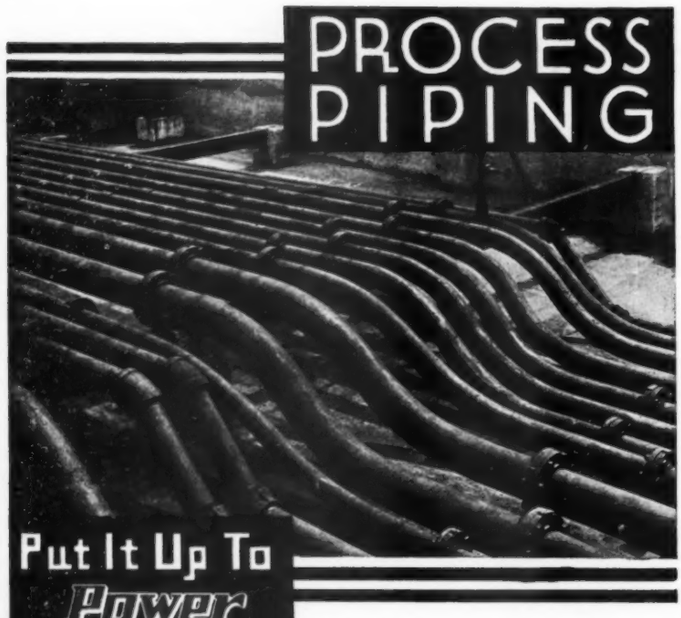
*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and mo nthly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend of 2 per cent.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.
(Complete record week ending Feb. 20)

1931 High	1931 Low	Week ending Feb. 20 Sales	Week ending Feb. 20 High	Week ending Feb. 20 Low	Close Feb. 24	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
14	12	1,600	13⅞	13⅛	..	Amerada Corp.	(sh)	922,075	N.P.	50cQ	1-30-32	43⅞	27⅛	42⅝	17½	31½	16½
4	1¾	3,900	4	2¾	3⅛	American Republics Corp.	(sh)	209,180	N.P.	....	12-31-30	85	51⅛	64¾	12½	37	5⅛
9¾	8	50	8	8	..	Associated Oil		$57,260,300	$25	....	6-30-31	53⅜	37½	47¼	34½	51	30
10⅞	8⅝	11,400	10⅞	10	10⅛	Atlantic Refining		$66,763,775	$25	25cQ	12-15-31	66⅜	50	77⅞	30	51⅜	16⅝
5⅞	4	5,900	5⅛	4½	4⅝	Barnsdall Corp. A		$56,546,600	$25	....	5-11-31	54	20	49⅛	20	34	8⅝
6⅞	5⅝	28,700	6⅝	6⅛	6	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
15½	11	2,200	14¼	13⅛	12⅝	General Asphalt	(sh)	413,333	N.P.	50cQ	12-15-31	94⅞	68	94¾	42¼	71½	22⅜
23⅜	16⅛	13,400	22	19	19⅛	Houston Oil		$24,968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
1⅜	1¼	No sales	..	..	..	Indian Refining		$12,564,070	$10	....	10- 1-30	39⅝	9	53	13⅛	17	2
1⅜	1	100	1⅛	1⅛	..	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9⅜	18	7	12	3½
⅞	¾	100	¾	¾	..	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅜
6⅜	5¼	7,300	6	5½	..	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	44½	25⅛	39⅞	22⅛	32	11
6½	5	43,500	6	5¼	5⅝	Ohio Oil	(sh)	6,648,052	N.P.	....	3-14-31	84	58½	79⅞	64¼	32	16
		No sales	..	..	..	Pan American P. & T.		$50,084,700	$50	40c	1-20-32	50⅞	38¼	69	40½	46½	42
19	16	100	16	16	..	Pan American P. & T. "B"		$121,110,650	$50	40c	1-20-32	59⅞	37¾	69¼	40½	67¼	30
1¼	½	No sales	..	..	⅞	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1¾
8	3¾	10	6	6	..	Panhandle P. & R. pfd.		$2,564,400	$100	....	.....	108	70	76	47½	20	47½
5½	4	9,125	5	4⅝	4⅝	Phillips Petroleum	(sh)	2,593,075	N.P.	....	1- 2-31	53⅞	35¼	47	24¼	44⅝	11½
½	¼	400	⅜	⅜	⅜	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅜	1	2½	½
1⅛	⅝	2,100	⅞	¾	..	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	7	3½	5⅞	½	7⅛	1⅛
7	4½	1,400	5⅞	5¼	5⅜	Prairie Oil & Gas		$60,848,000	$25	....	3-31-31	68	46	65⅝	40½	54	11¼
8⅞	6⅛	7,600	7⅞	7⅜	7⅜	Prairie Pipe Line		$101,250,000	$25	....	6-30-31	280	172	65	45	60	16⅝
1½	1	500	1⅜	1	1	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
8⅛	3⅛	40	6½	5¾	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
5⅛	3⅞	4,300	4⅞	4¼	4¼	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
¾	½	6,200	⅝	½	½	Richfield Oil (new)		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
2⅜	2	2,900	2¼	2	2⅛	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
19⅞	13⅜	6,600	19⅞	18⅛	19	Royal Dutch N. Y.	(sh)	611,303	....	$0.938	8- 4-31	64	44⅝	64	43⅛	56½	36⅞
9	6¾	13,800	8¾	7⅞	7¾	Seaboard Oil of Delaware	(sh)	1,244,383	N.P.	....	10- 1-24	72	4⅝	59⅜	8¼	37	9¾
12½	8½	No sales	..	..	..	Shell Transport & Trading Co.		£23,985,000	£1	$0.726	7- 6-31	47⅞	41⅜	51½	40⅝	48⅜	26
4	2¾	4,200	3⅞	3½	3⅝	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39¼	23¼	31⅜	19	25½	5¼
6	4⅝	5,000	6	4¾	..	Simms Petroleum		$8,353,620	$20	....	9-15-30	27½	18⅛	40⅛	15	37	5⅝
7⅛	4¼	26,600	6⅛	5⅝	5⅞	Sinclair Consolidated	(sh)	5,500,000	N.P.	....	4-15-31	46⅝	17⅜	45	21	32	9¾
89	79	No sales	..	..	..	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	2-15-32	110	102½	111	103	112¼	86
4	2½	1,400	3¼	2¾	3	Skelly Oil		$27,441,250	$25	....	12-15-30	42⅝	25	40½	28	12	10⅛
10¾	8¾	97,500	10¾	9¾	10	Socony-Vacuum	(sh)	31,923,072	$25	25c	3-15-32	..	..	..	..	..	..
27	22½	29,600	26¾	24½	24½	Standard of California	(sh)	12,594,098	N.P.	50cQ	3-15-32	80	63	81⅞	51½	75	42½
12⅜	9	1,700	10¾	9½	..	Standard of Kansas		$8,000,000	$25	....	3-16-31	37¾	15	33¾	18	49	14⅜
30½	25⅜	69,100	30⅜	28	28½	Standard Oil of New Jersey		$634,999,200	$25	25cQ§	3-15-32	59⅜	37¾	83	49	84⅞	32½
31	27⅜	800	31	30¾	..	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-15-31	77	31½	68⅜	55	70	39
⅝	¼	600	⅝	⅜	..	Superior Oil Corp.	(sh)	766,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
13⅞	10	34,700	12¾	11⅝	11⅞	The Texas Corporation		$246,204,900	$25	25cQ	4- 1-32	74¾	50	71⅞	50	60½	28¼
2⅜	1⅞	1,200	2⅛	1⅞	..	Texas Pacific Coal & Oil Co.		$9,304,890	$10	....	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
		No sales	..	..	..	Tide Water Oil	(sh)	2,191,759	N.P.	....	6-30-31	41½	19⅝	40	14	31	13
35⅞	30	100	33	33	..	Tide Water Oil pfd.	(sh)	19,947,000	N.P.	$1.25Q	2-15-32	100⅛	86	97½	85⅛	94⅞	71
3½	2⅜	10,700	3⅛	2¾	2¾	Tide Water Associated	(sh)	5,560,424	N.P.	....	2-16-31	25	14¾	23½	10	17¾	5⅞
27½	20	400	22	21	..	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	1- 2-32	..	..	90⅞	74⅛	89¾	55
13⅞	10¾	4,600	13	11⅞	12	Union Oil of California		$104,342,375	$25	35cQ	2-10-32	58	42⅜	57	42⅛	50	10⅛
19¼	15	400	17	16	15½	Union Tank Car	(sh)	1,254,048	$100	40cQ	3- 1-32	128⅛	110	163¾	121⅞	38½	23
1½	1	600	1⅛	1⅛	..	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
5	3¼	6,000	5	3⅞	5	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus extra dividend of 25 cents.
In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.



There is more to a job of process piping than mere material or correct design or fabrication! A knowledge of the requirements to be met and the most economical method of serving the particular needs is the first essential . . . Power Piping Company engineers can provide the plan and this company's entire facilities are back of its execution!

POWER PIPING CO. * PITTSBURGH

O-3

Ross-Meehan Foundries

Manufacturers—

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Williamson Multispeed Winch for Oil Fields
Williamson Drum Units
Electric Steel Castings, Electrically Annealed
"Certified" Malleable Iron Castings
"Meehanite Metal" Castings
Gray Iron Castings
Special Analyses Castings for—
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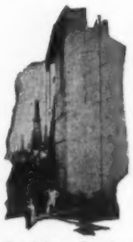

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 26)

Danciger O. & R. Co.'s No. 3 Byrum, 330 ft. from N line, 330 ft. from E line, Sec. 188, Blk. 3, T.&N.O. Sur. . . Drlg. 1,950 ft.
R. B. Etter et al's No. 1 Chapman, 275 ft. from N line and 110 ft. from W line of S½ SW, Sec. of Blk. 26, H.&G.N. Sur. . . . . Rig.
Foster's No. 1 Webb, 330 ft. from S and W, Sec. 43, Blk. 25, H.&G.N. Sur. . . . . Spudded.
Gulf Oil Corp.'s No. 1 Catlin, 2,310 ft. from N line, 330 ft. from E line, Sec. 27, Blk. 3, I.&G.N. Sur. . . . . Drlg. 2,645 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. 2-B, H.&G.N. Sur. . . . . S.D. 3,010 ft.; cleaned up fishing job.
Jewel Oil Co.'s No. 1 Meers, 330 ft. from S and W of NW SW, Sec. 106, Blk. 3, I.&G.N. Sur. . . . . T.D. 3,133 ft.; straightreaming.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. . . . . S.D. 2,620 ft.; estimated 4,000,000 ft. gas.
Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur. . . . . S.D. 2,600 ft.; show oil 2,525-40 ft.
Operators Royalty & Prod. Co.'s No. 2 Arnold, 330 ft. from S and W, Sec. 149, Blk. 3, I.&G.N. Sur. . . . . Rig.
Pulse-Shell Pet. Corp.'s No. 1 Wright, 330 ft. from S and W of Sec. 13, Blk. 3, I.&G.N. Sur. . . . . S.D. 2,659 ft.
Prairie Oil & Gas Co.'s No. 1 Pope, 330 ft. from N and E, Sec. 173, Blk. 3, I.&G.N. Sur. . . . . Drlg. 2,505 ft.
Saunders et al's No. 2 Sullivan, 822 ft. from W and 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur. . . . . Will plug back to 3,275 ft. and shoot.
Skelly Oil Co.'s No. 24 Schaffer, 440 ft. from W, Sec. 172, Blk. 3, I.&G.N. Sur. . . . . Drlg. 2,575 ft.
Skelly Oil Co.'s No. 25 Schaffer, 330 ft. from S and E, Sec. 189, Blk. 3, I.&G.N. Sur. . . . . Drlg. 2,020 ft.
Skelly Oil Co.'s No. 26 Schaffer, 330 ft. from S and W, Sec. 172, Blk. 3, I.&G.N. Sur. . . . . T.D. 1,156 ft.; standardizing.
Skelly Oil Co.'s No. 28 H. Schaffer, 440 ft. from S line and 440 ft. from E line of NE Sec. 189, I.&G.N. Sur., Blk. 3 . . . . . Location.
Stanolind Oil & Gas Co.'s No. 2 Waggoner, 330 ft. from N and W, Sec. 173, Blk. 3, I.&G.N. Sur. . . . . T.D. 500 ft.; sidetracking tools.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. . . . . Fishing 2,880 ft.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. . . . . Location.

HUTCHINSON COUNTY

Baso's No. 1 Moore, 330 ft. from S and 330 ft. from E, in 80 ac. in NW, Sec. 21, Blk. M-21, T.C.R.R. Sur. . . . . T.D. 400 ft.; fishing bailer.
Combination O. & G. Co. and Alspaugh's No. 1 Johnson, 330 ft. from S line, 330 ft. from E line of NW SW, Sec. 4, Blk. Y, A.&B. Sur. . . . . Drlg. 520 ft.
Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. . . . . Spudded and S.D.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 51, Blk. 46, H.&T.C. Sur. . . . . S.D. 450 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. . . . . T.D. 3,116 ft.; to plug back.
Oates and Marrow's No. 1 W. A. Starnes, C SE SW SE Sec. 24, M-23 T.C.R.R. Sur. . . . . Rig.
Pharis Oil Co.'s No. 5 Smith, 660 ft. from N and W, SW, Sec. 14, Blk. Y, M.&C. Sur. . . . . Rigging up standard tools.
Harry Stekoll's No. 1 Whittenburg, 1,650 ft. from N, 330 ft. from E, Sec. 89, Blk. Z, G.C.&S.F. Sur. . . . . Drlg. 2,440 ft.
Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. . . . . Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. . . . . T.D. 5,003 ft.

MOORE COUNTY

Dogie Oil Co.'s No. 1 Greenwald, 330 ft. from N and W, Sec. 277, Blk. 44, H.&T.C. Sur. . . . . Shut down; drlg. water well.
Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. . . . . Rig up.
Magnolia Pet. Co.'s No. 1 Nield, 330 ft. from S and E of N½, Sec. 361, Blk. 44, H.&T.C. Sur. . . . . Drlg. 2,815 ft.
Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. . . . . Rig on ground.
Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. . . . . Rig on ground.
Sunset Oil Co.'s No. 1 R. O. Brumley, 330 ft. from N line and 330 ft. from W line of SW, Sec. 360, H.&T.C. Sur. . . . . Cmtd. 12½-in. csg. 795 ft.
Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. . . . . Location.
Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. . . . . Location.
Texhoma Nat. Gas Co.'s No. 4 Coon "M," C SE, Sec. 103, Blk. 44, H.&T.C. Sur. . . . . Drlg. 2,710 ft.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. . . . . S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. . . . . S.D. 400 ft.
Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. . . . . Drlg. 3,550 ft.

PARMER COUNTY

Magnolia Pet. Co.'s No. 1 Wilson, 330 ft. from N and W, SE, Sec. 73, H. Kelly Sur. . . . . Drlg. 3,900 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. . . . . Drlg. 3,290 ft.
Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. . . . . S.D. 2,650 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. . . . . Drlg. 3,005 ft.
Devore & Robinson's No. 1 Sitter, 2,310 ft. from S and E of E½ of Sec. 33, Blk. 24, H.&G.N. Sur. . . . . S.D. 2,193 ft.

LATE DEVELOPMENTS IN BOTTOM-HOLE CHOKING

(Continued from Page 32)

jars are then passed through the lubricator and slowly lowered in the tubing.

At the desired level, the choke is set by rapidly reeling off the line. The slack line permits the jars to travel faster than the mandrel, which tends to lag because of the resistance of the fluid through which it is passing, and forces the slips downward, thus causing them to grip the tubing. A few strokes downward of the jars shears the rivets and drives the slips into a tighter hold. The line, jars, and running tool are then withdrawn and the well put to producing through the tubing. The pressure below the choke forces the mandrel upward and into a still tighter hold and expands the cups out against the wall of the tubing.

Removing Choke

The pulling tool is a three-pronged grab, which is screwed to the jars and lowered through the lubricator to the choke. The prongs slip over the slip-carrier and the body of the pulling tool rests upon the upper end of the mandrel, which protrudes above the slip carrier. Jarring downward drives the mandrel from under the slips and frees the choke. The prongs

then engage the shoulder on the slip-carrier and the choke is pulled out, with the slips in the retracted position, in the same manner in which it was run in.

The time required to run and pull the choke varies from an hour or so to half a day or more, depending upon the pressure of the well. If a power-driven reel (Figure 5) is used and if it is not necessary to anchor the lubricator, choke changes may be made almost as fast as it takes to run in the line and reel it out. Preliminary preparations and anchoring high-pressure wells consume most of the time.

Paraffin and imperfections in the tubing are the chief difficulties encountered in running chokes of the type described. Paraffin, which is generally found relatively close to the surface, can be removed by a paraffin cutter before running the choke. Diligent use of the template, or gauge tool, eliminates the danger of setting the choke prematurely in the tubing, or christmas tree. Sanding troubles in connection with the use of the choke have not yet been encountered, although the choke has been set in wells which made loose sand.

Conclusions

Recent experiments conducted with a removable type of bottom-hole choke carried on in co-operation with a number of operators in the Mid-Continent fields, to determine the advantages and possibilities of bottom-chole choking, indicate that if used discriminately, with proper consideration for its limitations, bottom-hole choking should serve an important part in the operation of oil and gas wells.

The conclusions given in this paper are drawn from the results of these experiments and are given with the hope of stimulating further discussion and investigation of the subject.

OUSTER SUIT ARGUMENTS

AUSTIN, Tex., Feb. 29.—Law arguments in Attorney General James V. Allred's $17,850,000 penalty and ouster antitrust suit against oil companies was recessed Friday, February 26, until Monday, March 7. The fourth week found all out-of-state corporations ordered into court under penalty of default judgments; and covered arguments on pleas for separate proceedings and for abatement of the suit against several of the 15 corporations. A direct attack on the antitrust laws is next in process when general demurrers are reached before District Judge J. D. Moore.

EAST TEXAS FIELDS

(Continued from Page 28)

crude from the well will be shipped out by tank car. Heavy rains have retarded activities, but when it is possible to get into locations considerable activity is expected for the area.

Ed Bateman is preparing to drill a 4,000-foot test near Bremond, having moved in heavy equipment. Location is 193 feet north of the Falls-Robertson County line and on the John Czyjkowski farm, approximately 1 mile west of Bremond.

The Dixie Oil Syndicate may sell part of its holdings around the Davis discovery well, retaining the larger part of the 4,000 acres around the well. Oil will be shipped out from the loading rack on the Southern Pacific Railroad.

COMPLETIONS IN EAST TEXAS

Cherokee County

Denman and others' No. 1 Renfore, location abandoned.

Gregg County

Atlantic Oil & Production Co.'s No. 1 A. V. Bacle, top sand 3,647 feet, initial production 60 bbls. per hour through three-fourths inch tubing choke, total depth 3,666 feet; No. 2 Castleberry, top sand 3,594 feet, initial production 60 bbls. per hour through tapered tubing, total depth 3,639 feet. Bob and others' No. 1 T. L. Bray, location abandoned. Cranfill & Reynolds' No. 2 Anderson, top sand 3,485 feet, initial production 96 bbls. through 1-inch tubing choke, total depth 3,520 feet.

East Texas Refining Co.'s No. 3 R. R. Collins, top sand 3,634 feet, initial production 75 bbls. per hour through 1-inch tubing choke, total depth 3,670 feet. Empire Gas & Fuel Oil Co.'s No. 4 L. A. Jeter, top sand 3,554 feet, initial production 58 bbls. in 15 minutes through open tubing, total depth 3,594 feet. Fain and McGaha's No. 3 Bauknight, top sand 3,587 feet, initial production 70 bbls. in 30 minutes through open tubing, total depth 3,624 feet. F. H. E. Oil Co.'s No. 2 J. Christian, top sand 3,625 feet, initial production 29 bbls. in 15 minutes through three-fourths inch tubing choke, total depth 3,650 feet; No. 1 J. M. Christian, top sand 3,631 feet, initial production 75 bbls. in 30 minutes through 1-inch tubing choke, total depth 3,661 feet; No. 4 R. Christian, top sand 3,629 feet, initial production 62 bbls. in 15 minutes through open tubing, total depth 3,650 feet.

Gulf Production's No. 4 J. C. Judge, top sand 3,498 feet, initial production 120 bbls. per hour through three-fourths inch tubing choke, total depth 3,519 feet; No. 5 Judge, top sand 3,498 feet, initial production 40 bbls. in 30 minutes through 1-inch tubing choke, total depth 3,548 feet; No. 4 Lacy Snider, top sand 3,482 feet, initial production 80 bbls. per hour through 1-inch tubing choke, total depth 3,512 feet. Manzeil and others' No. 1 C. H. Moore, top sand 3,599 feet, initial production 240 bbls. per hour through open tubing, total depth 3,608 feet. McCamey and Castleberry's No. 1 G. W. Castleberry, location abandoned. Selby and Lewis' No. 3 L. C. Ingram, top sand 3,520 feet, initial production 52 bbls. in 15 minutes through open tubing, total depth 3,551 feet. Selby Oil & Gas Co.'s No. 3-B Snavely, top sand 3,556 feet, initial production 85 bbls. per hour through 1-inch tubing choke, total depth 3,590 feet.

Shasta Oil Co.'s No. 2-B Ritchie, top sand 3,541 feet, initial production 25 bbls. in 15 minutes through three-fourths inch tubing choke, total depth 3,577 feet. Shell Petroleum Corp.'s No. 3 H. Hampton, top sand 3,595 feet, initial production 30 bbls.

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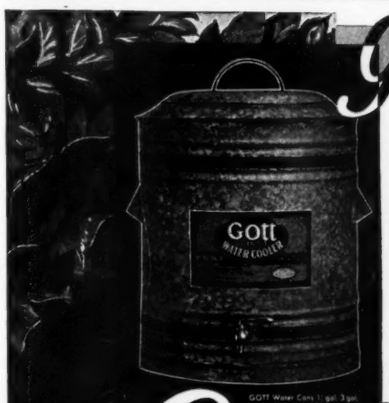

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in 25 minutes through tapered tubing, total depth 3,671 feet; No. 5 Richey, top sand 3,586 feet, initial production 40 bbls. per hour through tapered tubing, total depth 3,658 feet. Lewis Sike's No. 2 Stencil, top sand 3,701 feet, initial production 40 bbls. in 15 minutes through open tubing, total depth 3,712 feet.

Simms Oil Co.'s No. 2-A Tennery, top sand 3,606 feet, initial production 158 bbls. per hour through open tubing, total depth 3,621 feet. Sinclair Oil & Gas Co.'s No. 20 Moncrief, top sand 3,536 feet, initial production 75 bbls. in 15 minutes through open tubing, total depth 3,570 feet. Stanolind and Simms Oil Co.'s No. 5 Person, top sand 3,512 feet, initial production 55 bbls. in 30 minutes through open tubing, total depth 3,574 feet. Sun Oil Co.'s No. 3 J. C. Gray, top sand 3,599 feet, initial production 25 bbls. per hour through tapered tubing, total depth 3,625 feet; No. 5 J. C. McKinley, top sand 3,617 feet, initial production 110 bbls. per hour through open tubing, total depth 3,642 feet.

Tidal Oil Co.'s No. 2 Moore, top sand 3,530 feet, initial production 31 bbls. in one-fourth hour through three-fourths-inch tubing choke, total depth 3,565 feet. Yount Lee Oil Co.'s No. 2 M. McKinley, top sand 3,548 feet, initial production 95 bbls. per hour through 1-inch tubing choke, total depth 3,568 feet. Arkansas Fuel Oil Co.'s No. 1 Huey-Ross, top sand 3,496 feet, initial production 43 bbls. in one-half hour through 1-inch tubing choke, total depth 3,623 feet. Barnsdall Oil Co.'s No. 1 Grant Beason, location abandoned. George Bibbs' No. 1 Barnett, location abandoned. Byrd-Frost Oil Co.'s No. 3 M. B. Hughey, top sand 3,514 feet, initial production 125 bbls. per hour through three-fourths-inch tubing choke, total depth 3,564 feet. Doss & Jones' No. 3 Hagler, top sand 3,560 feet, initial production 75 bbls. per day pinched, total depth 3,574 feet.

Henry Oil Co.'s No. 2 Ben Laird, top sand 3,540 feet, initial production 75 bbls. per day pinched, total depth 3,612 feet. Jones & O'Brien's No. 1 Hughey-Ross, top sand 3,488 feet, initial production 75 bbls. per day pinched, total depth 3,528 feet. W. A. Brown's No. 1 J. Spear, top sand 3,537 feet, initial production 30 bbls. in 20 minutes through 1-inch tubing choke, total depth 3,583 feet. Marine Oil Co.'s No. 2 L. V. Crim, top sand 3,574 feet, initial production 75 bbls. per day pinched through tubing, total depth 3,580 feet. Mazda Oil Co.'s No. 2 Levi Butts, top sand 3,651 feet, initial production 75 bbls. per day pinched through tubing, total depth 3,653 feet.

Shell Petroleum Corp.'s No. 3-B J. S. Elder, top sand 3,530 feet, initial production 21 bbls. in 20 minutes through tapered tubing, total depth 3,534 feet. Sinclair Oil & Gas Co.'s No. 2 J. E. Lawther, top sand 3,550 feet, initial production 65 bbls. in one-half hour through three-fourths-inch tubing choke, total depth 3,579 feet. Sun Oil Co.'s No. 2 J. S. Elder, top sand 3,549 feet, initial production 120 bbls. per hour through open tubing, total depth 3,580 feet. Tidal Oil Co.'s No. 2 C. C. Strong, top sand 3,627 feet, initial production 315 bbls. per hour through open tubing on five-minute test, total depth 3,645 feet.

Henderson County

South American Drilling Co.'s No. 1 D. R. Boone, top sand 4,371 feet, dry and abandoned, total depth 4,547 feet.

Kaufman County

Hoffpier and others' No. 1 Kaufman County Farm, location abandoned.

Rusk County

A. W. Jones Oil Co., Trustee's No. 1 J. M. Grant, junked and abandoned, total depth 2,410 feet. Mrs. S. S. Thompson's No. 1 Price, top Georgetown lime 3,193 feet, dry and abandoned, total depth 3,280 feet. Darby Petroleum Co.'s No. 4 C. O. Christian, top sand 3,710 feet, initial production 30 bbls. in one-fourth hour through three-fourths-inch tubing choke, total depth 3,730 feet. DeArman Brothers' No. 3 M. E. King, top sand 3,668 feet, initial production 75 bbls. per day pinched, total depth 3,720 feet.

Gulf Production Co.'s No. 6 A. Laird, top sand 3,611 feet, initial production 113 bbls. per hour through three-fourths-inch tubing choke, total depth 3,627 feet; No. 2 Sexton, location abandoned. Humble Oil & Refining Co.'s No. 15-B S. S. Laird, top sand 3,526 feet, initial production 11 bbls. per hour through three-fourths-inch tubing choke, total depth 3,613 feet. Louisiana Oil & Refining Co.'s No. 1 Jernigan, top sand 3,644 feet, initial production 36 bbls. in one-fourth hour through 1-inch tubing choke, total depth 3,656 feet. Magnolia Petroleum Co.'s No. 4 S. E. Brox, top sand 3,614 feet, initial production 21 bbls. in one-fourth hour through three-fourths-inch tubing choke, total depth 3,653 feet. Oliphant and others' No. 2 W. P. Moore, top sand 3,775 feet, initial production 39 bbls. per hour through three-fourths-inch tubing choke, total depth 3,780 feet. Shell Petroleum Corp.'s No. 8 Moore, top sand 3,673 feet, initial production 20 bbls. in one-half hour through tapered tubing, total depth 3,695 feet. Sinclair Oil & Gas Co.'s No. 2-A Major Kennedy, top sand 3,659 feet, initial production 87 bbls. per hour through open tubing, total depth 3,722 feet.

Tidal Oil Co.'s No. 2 S. S. Laird, top sand 3,659 feet, initial production 87 bbls. per hour through open casing and tubing, total depth 3,719 feet. Wheelock and Collins' No. 7 Dick Wells, top sand 3,623 feet, initial production 125 bbls. per hour through open tubing, total depth 3,645 feet. S. P. Borden's No. 1 R. G. Mason, top sand 3,646 feet, initial production 75 bbls. in 35 minutes through three-quarters-inch tubing choke, total depth 3,674 feet. Golding and Murchison's No. 1-C E. L. Pinkston, top sand 3,623 feet, initial production 90 bbls. per hour through open tubing, total depth 3,711 feet; No. 1 J. D. Strickland, top sand 3,584 feet, initial production 30 bbls. per hour through open tubing by heads with 2-inch lead line, total depth 3,675 feet.

Gulf Production Co.'s No. 3 W. P. Keeling, top sand 3,658 feet, initial production 100 bbls. per hour through open tubing, total depth 3,693 feet; No. 1 J. W. Shaw, top sand 3,754 feet, initial production 45 bbls. per hour through three-quarters-inch tubing choke, total depth 3,758 feet. Humble Oil & Refining Co.'s No. 5 J. H. Arnold, top sand 3,734 feet, initial production 48 bbls. in one-half hour, total depth 3,793 feet; No. 2 Azzie Scott, top sand 3,730 feet, initial production 70 bbls. per hour through three-quarters-inch tubing choke, total depth 3,791 feet; No. 3-A R. E. L. Silvey, top sand 3,704 feet, initial production 72 bbls. per hour through three-quarters-inch tubing choke, total depth 3,771 feet; No. 4 Thompson, top sand 3,665 feet, initial production 45 bbls. in one-half hour through three-quarters-inch tubing choke, total depth 3,670 feet.

Lide and Roe's No. 3 Calvin Young, top sand 3,680 feet, initial production 55 bbls. in one-half hour through open tubing, total depth 3,638 feet. Mid-Kansas Oil & Gas Co.'s No. 4 R. G. Mason, top sand 3,579 feet, initial production 134 bbls. per hour through open tubing, total depth 3,647 feet. I. P. O'Neal's No. 3 Mayfield, top sand 3,706 feet, initial production 170 bbls. per hour through open tubing, total depth 3,712 feet.

Ortiz Oil Co.'s No. 2 Calvin Young, top sand 3,630 feet, initial production 100 bbls. per hour through open tubing, total depth 3,700 feet. Overton Refining Co.'s No. 2 M. L. Jones, top sand 3,780 feet, initial production 95 bbls. in one-half hour through open tubing, total depth 3,805 feet. Reed and Reed's No. 2 M. M. Thompson, top sand 3,743 feet, initial production 70 bbls. in one-half hour through open tubing, total depth 3,780 feet. Reynolds and Blankenship-Trapp's No. 1 Graven, top sand 3,731 feet, initial production 65 bbls. in one-half hour through open tubing, total depth 3,790 feet.

Sinclair Oil & Gas Co.'s No. 1 W. H. McCord, top sand 3,618 feet, initial production 62 bbls. per hour through open tubing, total depth 3,660 feet. Tidal Oil Co.'s No. 3 Finney, top sand 3,670 feet, initial production 70 bbls. per hour through open tubing, total depth 3,740 feet; No. 4 Joel Shaw, top sand 3,696 feet, initial production 47 bbls. in 10 minutes through open casing, total depth 3,760 feet.

Smith County

C. B. Bunte, Inc.'s No. 1-B A. S. Jarvis, top sand 3,656 feet, initial production 80 bbls. per hour through 1-inch tubing choke, total depth 3,662 feet.

Upshur County

Cal-Pet Corp.'s No. 3 Stinchomb, top sand 3,697 feet, initial production 35 bbls. in 25 minutes through 1-inch tubing choke, total depth 3,714 feet. E. & D. Oil Co.'s No. 1 J. W. Free, top sand 3,720 feet, initial production 20 bbls. in one-quarter hour through three-quarters-inch tubing choke, total depth 3,727 feet. Mead Brothers' No. 2 Walker, top sand 3,608 feet, initial production 70 bbls. per day, total depth 3,640 feet. J. A. Woods' No. 3 A. J. Sanders, top sand 3,642 feet, initial production 93 bbls. in one-half hour through three-quarters-inch tubing choke, total depth 3,657 feet.

Van Zandt County

The Texas Company's No. 4 R. V. White, initial production 3,120,000 feet of gas, total depth 2,973 feet. Pure Oil Co.'s No. 8 F. B. Smith, initial production through eleven-sixteenths-inch tubing choke 190 bbls., total depth 2,922 feet. The Texas Company's No. 3 J. A. Bracken, initial production through eleven-sixteenths-inch tubing choke 357 bbls., total depth 2,931 feet. Pure Oil Co.'s No. 1 W. F. Cade, plugged and abandoned, total depth 3,150 feet.

TUBING FLOW ADDS LIFE TO OIL WELLS

(Continued from Page 14)

field, but if the same total amount of gas can be produced with a lower peak rate of production, the amount of gasoline recovered can be increased. Similarly, it has been considered economically impracticable to provide sufficient pipe line capacity so that all of the dry gas can be delivered from a field to the consumer during the peak of production, but a reduction of the peak will correspondingly reduce the investment for gas line and compressors required to conserve the gas.

The use of tubing has been suggested as a basis for production curtailment programs. This suggestion has several things to recommend it. Most important, it gives indication of leading to a greater ultimate recovery. Furthermore, it appears equitable and easy to apply. A requirement of the use of tubing of a stipulated size is definite and permanent, whereas the stipulation of a bean of a certain size is neither definite nor permanent, because beans of the same size may have radically different capacities, and on account of the cutting action of sand, beans are apt to gradually increase in size.

ENGINEERS, PURCHASING AGENTS, TALK RELATIONS

(Continued from Page 17)

mation from users that will be of value to him in making his decisions.

The Sales Engineer

The last of the speakers was W. D. Moorer for the sales engineer. Mr. Moorer presented a deeply analytical and fundamental study of the main topic, which was well received. He declared that if fundamentals were established and understood details of buying and selling would correct themselves. The problem is really one of executive understanding and leadership. Each individual in an organization must serve an economic function if the organization hopes to prosper. The relationship between engineer, purchasing agent and salesman is fundamentally an economic one, based upon a mutual, dependent service to each other and collectively upon service to industry.

The engineer may be defined as a consumer; the salesman as a manufacturer or producer and the purchasing agent as the market. Taken collectively and fundamentally it would require a keen economist to define and tell which is the other's customer; whether the producer of commodities exists because of the manufacturer, or vice versa. If all the factors would keep in mind the fundamentals of economic relationship it would strengthen business judgment and temper rules and habits of human conduct.

Profitless transactions have been the rule during the depression, partly through natural causes and partly through purchasers taking advantage of the situation and driving hard bargins. The sooner it is understood that a profitless transaction in any commodity will react on those engaged in it, the sooner will a fair profit be accorded to every one doing a legitimate business and rendering a service.

The discussion brought forth many comments from the audience which clarified and added to the remarks of the former speakers.

Other participating in the discussion were Fred Cooper of the Allis Chalmers Manufacturing Co., Tulsa; G. A. Thompson, purchaser for The Empire Companies, Bartlesville; J. W. McGregor, Tulsa; Herman Taubman, Taubman Supply Co., Tulsa; A. M. Bowman, district manager, Parkersburg Rig & Reel Co., Tulsa; Harold B. Ward, purchaser, Wilcox Oil & Gas Co., Tulsa; O. E. McClatchey, purchaser, Barnsdall Oil Co., Tulsa; H. F. Brindell, engineer, Gypsy Oil Co., Tulsa; Lee Croom, Indian Territory Illuminating Oil Co., Bartlesville, Okla.; J. H. Baker, Midwest Equitable Meter Co., Tulsa, and L. D. Armstrong, Gaso Pump & Burner Manufacturing Co., Tulsa.

SAND CONDITIONS SET GAS-OIL RATIOS

(Continued from Page 16)

50 per cent of the gas separates out in the trap, compared with the quantity separating at atmospheric pressure. Figure 6 shows the apparent gas-oil ratios obtained at an East Texas well before application of the correction for trap pressure, and Figure 7 the ratio at the same well after correction. There is another way by which the lack of a standardized and generally accepted method for measuring gas-oil ratios may lead to fictitious differences when comparing ratios before and after changes in the equipment; differences that do not correspond to any real change in the composition of the material coming into the bottom of the hole from the formation, and which, therefore, can have no possible effect upon the ulti-

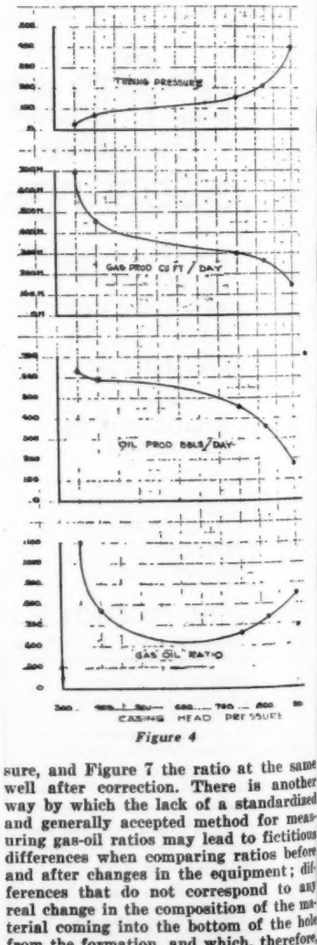


Figure 4

mate production or life of the well. The combination of flow column, choke and trap, forms a more or less efficient fractionating device, and rearrangement or alterations in one or more of these, may modify the fractionating efficiency, and change the proportion of the total production that becomes a gas or remains a fluid at the measuring apparatus at the surface. Such shifts in the dividing line between gas and fluid are accompanied by changes in the density of the produced oil, and gas-oil ratios at a well are not comparable unless the density remained constant, or unless a suitable correction is applied.

Gas Lift Wells

When dealing with gas lift wells the possibilities of error are even greater. The gas-oil ratios at a gas or air lift well are arrived at by subtracting the input from the output gas, and, as these quantities are usually large compared to their difference, miscalculations lead to magnified errors in the derived gas-oil ratio. Alexander B. Morris endeavored in a paper presented at the Tulsa meeting, October, 1929[2], to show that a difference in gasoline content of only 1 gallon per thousand cubic feet, between the input and output gas in the reported results from some gas lift wells, could lead to errors of several hundred per cent in the calculated gas-oil ratios.

Where the sand, or series of sands from which a well is producing, is thick compared with the total depth, there will be a difference in back pressure against the upper and lower sands. The position of the lower end of the flow string, if below the upper sand, will have some effect upon the differential back pressure, and, therefore, may have some effect upon the gas-oil ratio. This is not denied, but it is maintained that changes in the equipment above the level of the top of the sand, if unaccompanied by a change in the rate of oil production, can have no effect on the gas-oil ratio. Where, as is usual, the gas is above the oil, lowering the tubing will tend to reduce the differential pressure and improve the ratio, but this can only happen when the end of the tubing is below the top of the sand. When a well is producing from one or more sands, even if the rock pressures differed originally, and when the well is producing both oil and gas, the pressure gradients in the sands will adjust themselves, so that the back pressures at the faces of the sands will be the same, or differ only by the amount due to the additional head on the lower sand due to the mixture in the hole between the upper and lower sands, and the laws enumerated above will hold.

Discussion

In the course of discussion, arguments of the following type have been encountered:

Question: Is it not the case that with a properly designed flow string, fewer cubic feet of gas will be able to lift the same quantity of oil; and that therefore the gas-oil ratio will be reduced?

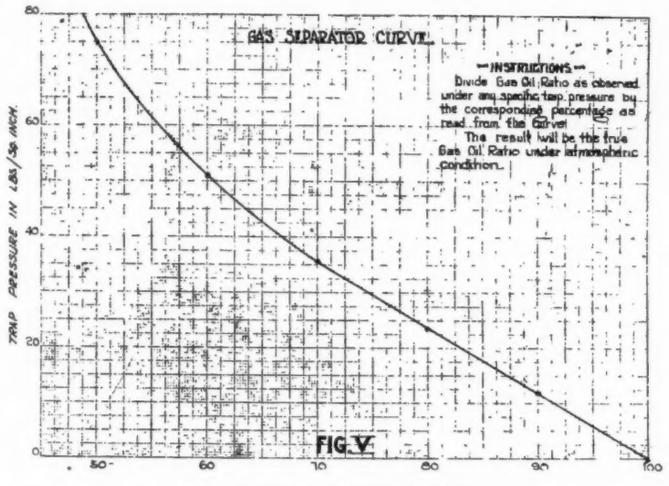
Answer: Unfortunately, the quantities of oil and gas coming in from the sand do not automatically adjust themselves, so that just the right amount of oil fully to utilize the gas, enters the hole. If there is sufficient gas energy under the flow conditions to lift the desired production, the well will flow. If the efficiency of the flow string is increased the well will flow both gas and oil at a greater rate. To bring it back to the pre-existing rate of production, a choke, or some other means, must be employed to counteract the increased lifting efficiency, and we get back to where we were.

Question: Surely proper design of flow string, by decreasing the slip and increasing the upward velocity of the oil must improve the gas-oil ratio. The answer to this is, that neither the mechanical efficiency of the lifitng means, nor the relative velocities of the gas and oil, control the gas-oil ratio. Changes in the slip are compensated by changes in the relative quantities of the components of the mixture in any unit length of the flow string.

Illustration

An illustration may make clearer what is meant here: Hares and hounds arrive in pairs at the entrance to a tunnel. They run through the tunnel at the same speed, and there is, therefore, no slip. It is obvious that the hound-hare ratio at the exit will be one to one. A change is made and the hounds quicken their speed, traveling, say, twice as fast as the rodents. The slip is now 50 per cent, nevertheless the hound-hare ratio, as measured at the exit, will continue to be one to one. The relative speeds with which the components of a mixture travel through a passage, do not control the composition at the exit.

It appears likely that lowering the gas-oil in the early stages of the life of a field will entail a higher ratio later, because the oil to free gas ratio in the reservoir will be lower than would otherwise have prevailed, but even if lowering the gas-oil ratio does not, for this reason, lead to greatly increased ultimate recovery, it appears desirable from the point of view of extending the natural flowing life of the wells, and so reducing lifting costs.


GAS SEPARATOR CURVE
INSTRUCTIONS
Divide Gas Oil Ratio as observed under any specific trap pressure by the correspondind percentage as read from the Curve
The result will be the true Gas Oil Ratio under atmospheric condition.
TRAP PRESSURE IN LBS/SQ INCH.
PERCENTAGE OF GAS SEPARATION IN TRAP.
FIG. V

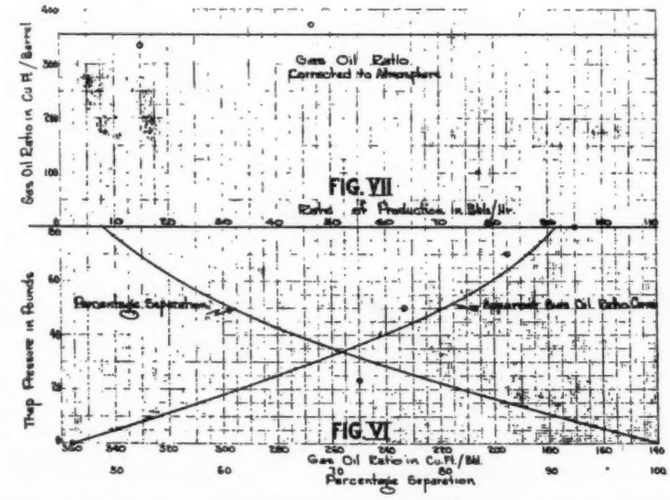

Gas Oil Ratio Corrected to Atmosphere
Gas Oil Ratio in Cu Ft / Barrel
Rate of Production in Bbls/Hr.
Percentage Separation
Trap Pressure in Pounds
Gas Oil Ratio in Cu.Ft./Bbl.
Percentage Separation
FIG. VII

FIG. VI

Conclusions

1. Where the rate of production is fixed, it is impossible to control or alter the gas-oil ratio at a well by means of the equipment above the sand. Changes in the lifting efficiency, or in the oil-gas slip, do not affect the gas-oil ratio unless accompanied by a change in the rate of oil production.

2. Where there is no free gas at the pressure prevailing at the bottom of the hole, it is impossible to control or alter the gas-oil ratio in any way.

3. In some cases where there is free gas at the bottom of the hole, the gas-oil ratio varies with the rate of production, and it is possible, therefore, to improve it by selecting a favorable rate of production, but provided this favorable rate of production can be obtained, it will make no difference what equipment is used.

4. It is not argued that tapered strings, bottom-hole chokes, etc., do not have their uses. They may, for instance, enable the natural flowing life of a well to be extended, or lower the input gas requirements at gas-lift wells, reducing the lifting costs.

5. The position of the lower end of the flow string, when below the top of the sand, may affect the gas-oil ratio, but this is the only point in connection with the equipment, by which any control over the gas-oil ratio can be obtained. Where the gas is above the oil, as in most cases, lowering the tubing below the gas sand will tend to improve the gas-oil ratio.

6. The gas-oil ratio of a pool, considered as a whole, may if there is free gas, and during the early part of its life, be varied over wide limits by selecting the position on the structure from which the production is withdrawn, even when the rate of production is determined by other considerations, but the ratio at any individual well, with a predetermined rate of production, is beyond control.

[2]"Condensation Effects in Determining Gas-Oil Ratio," A.I.M.M.E., Tulsa, October, 1929.

IMPROVEMENT AHEAD FOR NATURAL GASOLINE

(Continued from Page 74)

assured. The state conservation laws, which are more and more stringent—as witness the new Texas law—assure that less and less casinghead gas will be wasted and this in turn, means a greater recovery of natural gasoline whether produced in flush fields or old settled areas. The greater recognition on the part of production engineers of the desirability of keeping gas in the sand as long as possible to facilitate the operation of wells assures a more orderly production of casinghead gas per barrel of crude oil which means a larger ultimate production in all new fields that are discovered in the future.

Now Consider the Demand Side

We have heard a great deal in recent months to the effect that refiners with their rapid expansion in cracking facilities and vapor recovery plants will shortly have the raw material and the plant facilities to manufacture all the natural gasoline needed for their operations.

Assume for the moment that this development will materialize. Does this mean that the 2,000,000,000 gallons yearly output of natural gasoline will have to be run on the ground or sold at prices under the cost of production? Obviously such is not the case. Natural gasoline, as we said before, essentially is motor fuel in the same sense as refinery gasoline. It would be just as reasonable to state that refiners will have to take 2,000,000,000 gallons of their own output and run it down the sewer as to state that there is to be no market for natural gasoline due to changing conditions in the manufacture and marketing of petroleum products.

If natural gasoline is to be marketed at a loss indefinitely then we can rest assured that it will drag down to its level the other 90 per cent of the motor fuel supply and the entire oil business will be on the wrong side of the ledger. Natural gasoline as it comes from our plants is a refined product and with our improvements in plant processing we have a control over specifications which gives us the flexibility necessary to meet any changes which may arise.

In Line With the Trend

Finally, keep in mind that the changes under way in motor fuel supply and demand have added to, rather than subtracted from, the premium position of our product. Voltaility and high antiknock rating are more important in engine performance than ever before and we have an abundance of both. In addition we have just started in the development of special products to serve other industries.

So—let's keep our eye on the doughnut rather than the hole and get ready to move out with the prosperity parade which is now forming.

METHODS FOR QUIETING GAS ENGINE EXHAUSTS

(Continued from Page 74)

heat that must be dissipated if cooling is to be beneficial, regardless of method of cooling. Then, assuming heat losses by radiation to be constant the remainder of the heat must be absorbed by the water. It is doubtful if just exactly the right amount of water to absorb this heat and evaporate completely can be continuously controlled. If less water is injected the benefits to be obtained by using water at all are materially reduced and all of the disadvantages are emphasized. If more water is used than that barely required, the problem of disposing of the unevaporated portion is evident. To insure cooling most operators prefer to use more water.

Water from a high pressure system is difficult to control through a valve in the small quantities required without a sight feed system. A low pressure, sight feed system should offer the best arrangement where water is used. The amount of evaporated water may be judged by the amount of steam coming out of the exhaust stack. This, however, is a doubtful criterion of the useful effect of water used, and is not an accurate measurement of quantity.

Recirculation offers the disadvantages of (1) additional investment in equipment and (2) continuously circulating water highly concentrated with scale forming solids and corrosive elements absorbed from the exhaust gases. A better condition is maintained by wasting the residue water and supplying fresh water continuously. The formation of scale cannot be prevented in any case unless pure water is used.

The reduction of gas volume in the exhaust stool, by water injection, as a

means of reducing back pressure is also to be considered. The cooling effect necessary to reduce back pressure materially must be considerable. The amount of water required to do this, due to its high specific volume at exhaust pipe pressure creates a large amount of vapor which at some point near 600° F. will overbalance the reduction in exhaust gas volume due to temperature drop. As the resultant temperature at the balance is high, the usefulness of water injection as a means of reducing back pressure is problematical.

In a number of installations tested, the water actually dissipated through the exhaust stack for satisfactory operation, amounted to between 0.3 to 0.5 gallon per horsepower per hour. These tests cover various conditions of engine load up to 100 per cent. Back pressures at the exhaust stool for various types of engines with well designed exhaust stacks seem to vary between 2 and 6 inches of water. The lowest back pressure was observed in a direct exhaust pipe without a muffler, while various types of mufflers increased back pressure somewhat.

Some of the disadvantages of using water injection as a method of cooling are (1) scaling of exhaust lines with attendant building up of back pressure and subsequent maintenance, (2) cost of water dissipated, (3) corrosion of roofs and nearby equipment due to water vapor from exhaust stacks, (4) danger of leakage of water from system and possibility of undermining building and engine foundations.

The air draft cooled type of exhaust pipe falls into two classes, (1) natural draft and (2) induced draft. The natural draft type is one in which a concentric pipe or duct, opening into the engine room somewhere between the exhaust stool and the building foundation, is placed around the exhaust pipe proper and carried to a point below the top of the exhaust stack.

The heated air will tend to rise and will create a small circulation of air. The cooling effect is very small, but it does tend to insulate the exhaust pipe and ventilate the engine room somewhat. This principle can be used with a wet muffler, for the added advantage of ventilation.

The induced draft type, as shown diagrammatically in Diagram 3, employs the jet action of the exhaust gases for pulling a stream of air at atmospheric temperature through an annular duct around the exhaust pipe. The design of the jet, the air duct, and throat opening around the exhaust stool are of primary importance. The jet action involves a small pressure drop, the amount of which will depend entirely upon design. The size of the duct will determine air velocity, which must represent a good balance between efficient cooling and minimum energy required to produce it. The throat area and design determines the inlet velocity, the proper cooling at the exhaust stool, and minimum return vibration in the engine room. The air duct and plates above must be firmly secured to prevent vibration.

Expansion may be conveniently accommodated by swinging the inside stack to the outer stack by long bolts and thus eliminate the necessity for expansion joints. Air velocities at the throat have been measured on various installations and found to range between 300 and 1,200 lineal feet per minute for best results. This velocity can be arranged to suit operating conditions. The application of this principle to a given installation, assuming the existing exhaust pipe and muffler, if any, unchanged will not increase the back pressure more than 1 inch of water for each 3 inches of water back pressure existing previously.

Advantages of this type as compared with the other two types are (1) Exhaust pipe insulated from engine room; (2) positive draft conducting all heat to outside of engine room; (3) ventilation of engine room, improving working conditions; (4) no water required, with its attendant disadvantages; (5) constant, uniform back pressure; (6) no moving parts or maintenance; (7) efficient cooling of exhaust pipe; (8) cooler outside stack temperatures; (9) added protection against back fires, and (10) comparable investment.

Muffling engine exhausts, with slight variations due to the presence of steam or air, presents, fundamentally, the same problem regardless of type of engine.

Sound is transmitted by pulsations of the air. These pulsations are in the form of waves having definite lengths controlled by the intensity and frequency of the engine exhaust. If these waves are confined in such a fashion that their energy cannot be dissipated sideways most of their original force is transmitted or it may be intensified by resonance. Breaking up these uniform vibrations by means of expansion chambers, water seals, baffles, etc., will materially deaden the resulting sound. The efficiency of the muffler will depend upon the manner in which the reflecting surfaces are employed to minimize the sound pulsations. Efficient muffling can be secured with a negligible amount of increased back pressure.

INTENSIVE SEARCH MADE FOR HIDDEN POOLS

(Continued from Page 15)

its included sands, pinch out on the east side of the field due to the post-Woodbine erosion and truncation of the formation as ideally shown in Figure 1. In the Glenn Pool of Oklahoma, the edge of the sand, which limits the field on the northeast side, is due to the gradation from sand to shale, as ideally illustrated in Figure 2. The shoe-string fields of eastern Kansas and southeastern Ohio are bounded on two sides by the edges of the containing sand which mark the sites of ancient stream channels as shown in Figure 3, while in many of the Burgess and Dutcher sand pools of Oklahoma the edge of the pool is marked by the farthest advance of an overlapping sand member as illustrated in Figure 4. The latter case is probably the nearest approach to a true "shore-line" pool, since the shore line was at one time probably close to and paralleled the present edge of the sand. Thus the buried edge of the sand becomes one of the chief factors in the search for fields of this type and it may be caused by any one of a number of conditions.

After the edge of the sand is located in a prospective area, a trap in which the oil may have collected must be found. As with the case of the edge of the sand, there are several ways in which oil has been trapped in fields of this type. Thus, in the East Texas Field, the edge of the sand marks the east edge of the field, while dips of the sand form the north, west and south sides respectively. This is ideally shown in Figure 5. In fields of the type of the Glenn Pool and the Burbank Field of Oklahoma, the trap is formed by a lobe of sand which extends up the regional dip from the main body of sand. Oil and gas have risen in this sand lobe as far as possible and local structure is of minor importance, as shown in Figure 6. Synclines may at times be the most evident type of structure forming the trap in fields of this type as illustrated by the "6-6" field in Seminole County, Oklahoma (See Figure 7) and the West Coalinga Field in California. The intersection of the edge of the sand with a fault may furnish a trap, and Figure 8 in part at least, represents the condition in the fault line fields of eastern Texas.

Change in Practice

No sudden change in geologic practice is anticipated, but with the normal development of the oil business during the next decade, there will undoubtedly be an increasingly large proportion of geologic effort devoted to the search for the "shore-line" type pool and with this search there will be a gradual change in the seat of exploratory operations. Even a casual study of the "shore-line" type pools will bring to mind many other areas in the United States and elsewhere where the edge of a sand or possible producing horizon may be found buried. In most instances, in the United States, these areas are not where the oil companies are today carrying reserves of undeveloped leases and royalties.

Fields of the "shore-line" type are not going to be easy to find. Many dry holes may be necessary in the search for these fields, but since in the past they have almost invariably been large when found, the reward will be worth the effort. There will undoubtedly be a greater use of scientifically trained men than has been the case heretofore, particularly geologists trained in microscopic examination of cuttings, stratigraphy, paleontology, paleogeology, paleogeography, and sampling. It is Mr. Levorsen's belief that the future of the geological profession as it is applied to the oil business, lies in this type of geology. If that is the case, the oil company with an eye to its future oil reserves, will give increasing heed to the changing geological thought and be ready to take advantage of the opportunities which are certain to develop in its application. There is no need for the industry to be caught unawares again as it was by the inauspicious beginning of the East Texas Field.

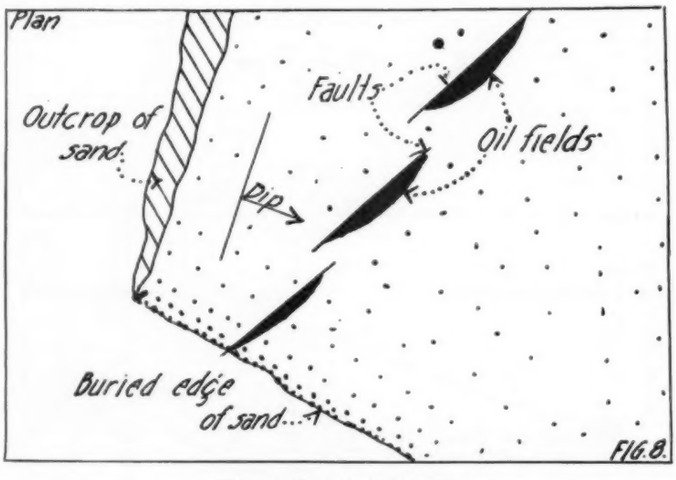


Figure 8—Oil in fault line pools.

GOVERNOR STERLING ISSUES NEW ORDER

(Continued from Page 13)

obey the law, but to avoid all appearance of disobedience to the law, I shall, therefore, until the Supreme Court of the United States has had an opportunity to determine whether Judge Foster or the court in this instance is correct, respect the opinion and the temporary injunction of the three-judge court; and,

"Whereas, insurrection and riot, and imminent danger thereof, continues to exist and to an even greater extent now than heretofore in the counties of Gregg, Rusk, Upshur and Smith, in the State of Texas;

"Now therefore you are hereby commanded and directed, first to respect the temporary injunction when and if it becomes effective; until such time as a stay of injunction is granted by the Supreme Court of the United States, or until the judgment of the three-judge Federal Court, granting the injunction against us, is by the Supreme Court reversed; and, second, to continue to enforce executive order of date February 4, 1932, as to all oil wells located in the above named counties, save and except the well or wells owned by E. Constantin and J. D. Wrather, described in their pleadings filed in the case in which the temporary injunction was granted.

"The original proclamation No. 8447, date August 16, 1931, is hereby continued in full force and effect, subject to subsequent executive orders and to this order.

ROSS S. STERLING,
"Governor of Texas."

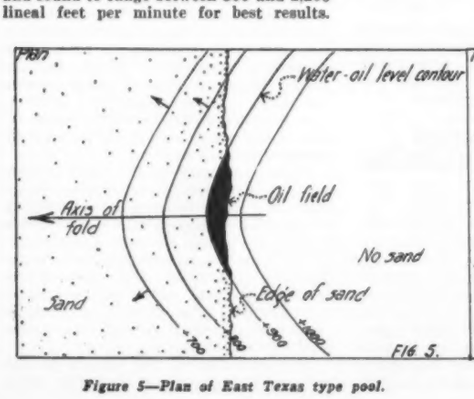


Figure 5—Plan of East Texas type pool.

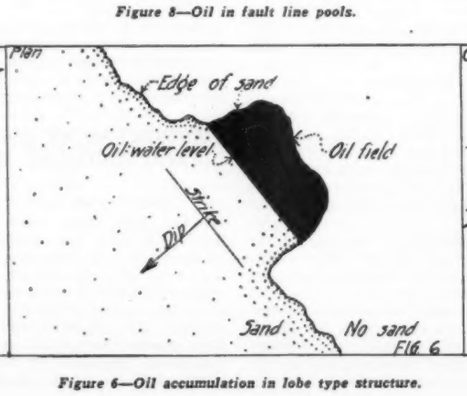


Figure 6—Oil accumulation in lobe type structure.

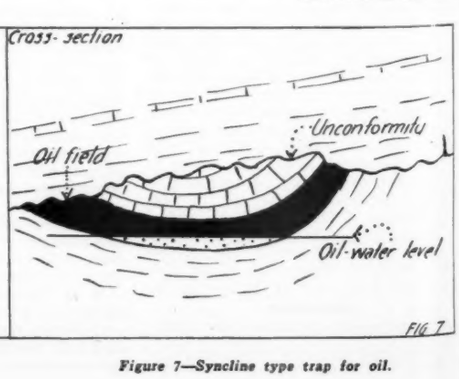


Figure 7—Syncline type trap for oil.

COMMISSION RULE BACK IN EAST TEXAS

(Continued from Page 13)

hours after bailing 2,000 feet and before drilling plug. Reconditioned casing that has not been tested before running shall set 12 hours after bailing to 2,000 feet and before drilling plug. In both cases, after setting the specified time, if the fluid level shows a rise of 25 feet or more, the well shall be caused to stand a second period of equal time. If after the second period of equal time, the fluid level shows a rise the casing shall be condemned. After the corrective operations, the casing shall again be tested in the same manner. Operators shall obtain casing clearance permit from the commission's agent before drilling plug. Casing may be tested by pump pressure providing the mud laden fluid in the hole is replaced by clear water and pump pressure of at least 600 pounds per square inch applied. If at the end of 30 minutes pressure shows a drop of 50 pounds, or more, the casing shall be condemned. Christmas tree fittings, or well head connections, shall be tested to at least 600 pounds per square inch. Each operator shall show on Form 2 the method of testing and sign an affidavit that the test has been made.

If a Railroad Commission agent is not available for inspection the operator shall have the test witnessed, preferably by an offset operator. Affivadit of test, on form prescribed by the commission, signed by the operator and witnessing operator, shall be given to the commission's agent. If test is satisfactory, a casing clearance permit will be issued by the Railroad Commission's agent.

Rule 4. Any well showing pressure on the bradenhead, or leaking gas or oil between the surface casing and the oil string shall be tested in the following manner: The well shall be killed with water and pump pressure applied through the tubing head. Should the pressure gauge on the bradenhead reflect the applied pressure, the casing shall be condemned and a new oil string shall be run and cemented.

Rule 5. All wells shall be equipped with a bradenhead with a working pressure of not less than 600 pounds per square inch. Bradenheads shall not be welded and the same shall be equipped with pipe connections and globe valve accessible at surface. No cement shall be pumped between oil string and surface casing.

Rule 6. The producing string of casing in each well must be cemented by pump and plug method, with not less than 150 sacks of cement, and cement shall be allowed to stand a minimum of 72 hours before drilling plug.

Rule 7. A blowout preventer in good condition and working order shall be installed on each well before drilling cement plug, coring pay or completing well.

Rule 8. All wooden derricks shall be properly guyed and all sills, except framing sills, removed. Well head connections shall be protected by a wooden shed constructed of at least 3-inch material.

Rule 9. All flowing wells must be produced through a separator, or gun barrel of ample capacity and in good working order.

Rule 10. All casinghead gas, which cannot be utilized without violating the rules and regulations of the commission, shall be piped to a point at least 150 feet from any producing well, stock tank, or other fire hazards and burned. All vent lines shall be equipped with back pressure valves. This rule applies to all gas from traps and flow tanks. Gas used from stock tanks, if burned, must be taken care of from a separate riser than the one used for traps and flow tanks.

Cleaning Wells

Rule 11. All townsite wells, or wells on school or other small lots, or parcels of land, shall be cleaned through the gun barrel or separator into the stock tanks.

Rule 12. All wells shall be cleaned into a pit not less than 40 feet from the derrick floor and 150 feet from any other fire hazard. This rule applies, except in cases covered by Rule 13.

Rule 13. The gas-oil ratio of each well shall not exceed 500 cubic feet of gas per barrel of oil.

Rule 14. Every operator shall turn in gas measurement of all of his wells along with his regular daily production report, at least twice a month. The gas measurement shall be by wells where possible.

Rule 15. All flowing wells shall be equipped with and produced through tubing of not more than 2½ inches in diameter. Bottom of tubing shall not be higher than within one joint of top of producing sand. If the tubing is perforated, the perforations shall not extend above the top of the sand.

Rule 16. All wells shall be equipped with adequate chokes, or beans to properly permit the taking of allowable production.

Rule 17. All wells producing 2 per cent salt water must be reported to the commission office. These wells shall be plugged back until the top of the sand is 10 feet above the water table. When this is not possible, the well shall be allowed a maximum of 3 feet of producing sand above the top of the plug.

Rule 18. All wells encountering the top of the producing sand at minus 3,300 feet, or lower, shall be allowed a maximum saturated sand penetration of 4 feet. Wells encountering the producing sand at a point higher than minus 3,300 feet shall be allowed a maximum penetration of two-thirds of the distance from the top of the sand to the water table.

Rule 19. No air or gas lift artificially applied, in its ordinary form shall be used. Special permission may, at the discretion of the commission, be granted for the use of special devices for lifting oil, using air or gas lift in such forms as will not be injurious to the producing sand. Such devices shall be used in the manner prescribed by the commission or its duly accredited representatives, and shall be used only after permit in writing has been issued by the commission or the chief supervisor of the Oil and Gas Division.

Rule 20. No boiler or electric lighting generator shall be placed, or remain, nearer than 150 feet to any producing well or oil tank.

Rule 21. All wells shall be completed in the daylight hours before sunset.

Rule 22. All permanent oil tanks, or batteries of tanks, must be surrounded by a dyke or fire wall of at least the capacity of the tank or battery of tanks.

Rule 23. No well shall be brought into production without a written permit from an authorized agent of the commission, showing that the well has been properly completed and equipped. If inspection is not made within 24 hours after written notice is given said agent, written permit shall be waived.

Gathering Lines

Rule 24. All purchasers, pipe lines and/or carriers of crude petroleum, shall equip their gathering lines from field storage tanks with lock-stops. New ball scale with name or initial of gathering or purchasing company, numbered consecutively, shall be attached to each stopcock after each run of oil.

Rule 25. Any rubbish, or debris, that might constitute a fire hazard, shall be removed to a distance of at least 100 feet from the vicinity of wells, tanks and pump stations. All waste oil shall be burned or disposed of in such manner as to avoid creating a fire hazard or polluting streams and fresh water strata.

Rule 26. All wells having a total depth within 10 feet of the current water table as determined by the commission, shall be required to produce at a rate not exceeding 20 bbls. per hour.

All conservation rules of the commission heretofore promulgated, to govern state-wide oil and gas operations which have not expired by their terms and which are applicable in the East Texas Field, shall still be enforceable unless in conflict herewith.

Rule 27. Effective at 7 o'clock a. m., February 26, 1932, and continuing until 7 o'clock a. m., March 16, 1932, each and every well in said field capable of producing crude oil shall be permitted to produce not more than 75 bbls. of oil per day. Thereafter until 7 o'clock May 1, 1932, the aggregate daily production of crude oil from said field shall not exceed 325,000 bbls. The period March 16, 1932, to May 1, 1932, shall be divided into semimonthly periods beginning at 7 o'clock on the first and sixteenth day of each month.

The aggregate daily production of oil from the field as above defined shall be divided ratably and equally between all wells in said field, taking into account all wells coming into production during any semimonthly period. The commission or its duly accredited agents in the field, effective at the beginning of each semimonthly period, shall ascertain the number of wells capable of producing oil, as of the first day of such period and the probable number of wells which shall be completed during such period and the sum of the total wells capable of producing oil on the first day of each semimonthly period, plus the probable completion during such period, shall be divided into the sum of 325,000 bbls. and the quotient resulting therefrom shall be the daily allowable production per well for such period.

Nothing contained in this order shall be construed to relieve any party any common pipe line carrier, or any common purchaser from the duties and obligations imposed by Chapter 36, page 17 of the acts of the Forty-first Legislature at its fifth called session, commonly known as the "common purchaser act," and all amendments thereto including an act passed by the first called session of the Forty-second Legislature, commonly referred to as House Bill 19, nor to modify or change any provisions of said acts.

In the recently enacted legislation the legislature of Texas has provided that waste shall not be construed to mean "economic waste"; and further that the Railroad Commission of Texas "shall not have power to attempt by order or otherwise directly or indirectly to limit the production of oil to equal the existing market demand for oil." In view of this legislative mandate the Railroad Commission has deemed it improper to consider any evidence at the hearings which convened on August 25, 1931, and on February 12, 1932, dealing with economic conditions in the oil industry. Accordingly, at the hearing mentioned no evidence was heard or considered dealing with price or with the limitation of production with a view of stabilizing or raising the price of crude petroleum oil.

Rules numbered from 1 to 26 herein, both inclusive, are to be permanent conservation rules in so far as the East Texas Field is concerned, and it is so ordered, but Rule 27 herein shall be only a temporary order as indicated by its terms.

It is also ordered that this cause shall be held open on the Docket until 7 o'clock a. m. May 1, 1932, and the Railroad Commission of Texas shall have the right and power to set aside, change or modify the same or any part thereof as to the allowable daily production in any respect, based upon evidence which was adduced at the hearings in Austin, beginning August 23, 1931, and February 12, 1932, without further notice.

It is also ordered that the commission similarly reserves the right to amend, modify or change any of the other rules or regulations herein, governing the location, spacing, drilling, completion and operation of wells without further hearing, where its judgment warrants.

NEW INJUNCTION ISSUED AGAINST MARTIAL LAW

TYLER, Tex., Feb. 29.—Judge Randolph Bryant today issued a federal court order restraining Governor R. S. Sterling, Adj. Gen. W. W. Sterling and Gen. Jacob

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 77)

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices effective June 20 are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills—The Associated Oil Co., effective at 7 a.m. February 5, 1932, withdrew and canceled any and all prices heretofore published and in effect for Kettleman Hills oil.

Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity which is 69 cents.

General Petroleum Co. in Kettleman Hills, effective January 1, 1932: 33-33.9 degrees, 66 cents; 34-34.9 degrees, 68 cents; 35-35.9 degrees, 70 cents; 36-36.9 degrees, 72 cents; 37-37.9 degrees, 74 cents; 38-38.9 degrees, 76 cents; 39-39.9 degrees, 78 cents.

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights Seal Beach	Huntington Beach	Athens, Rosecrans, Domingues	Torrance	Santa Fe Springs	Playa Del Rey* E. Coyote	Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.2
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

F. Wolters from interfering with the "lawful production of crude petroleum" from five East Texas wells owned by the Peoples Petroleum Producers, Inc., a Louisiana corporation.

The order, mailed here from Sherman by the court, acted upon the plaintiff's original petition filed shortly before the hearing of the Wrather-Constantin case, and asked virtually the same relief as did the suit heard before the three-judge federal court at Houston.

Eight other oil companies have recently filed similar petitions.

Last week the Peoples Petroleum Producers, Inc., filed a supplemental petition asking an injunction against the Railroad Commission to restrain that body from enforcing the state conservation laws as applied to oil and gas. The court has not yet acted upon this plea.

J. R. Blades, deputy clerk of the federal court, said that he would issue writs carrying out the last order of the court as soon as the plaintiffs had posted a bond of $1,000. The writs would enjoin interference with the wells until the court takes final action on the petition asking for an injunction.

WILDCATTING REVIVED IN WASHINGTON STATE

(Continued from Page 14)

1 Sims in Section 9-28n-14w. This test is on a torsion balance structure, the first test of such nature in the State; it is being drilled by drillers from Louisiana. The employment of the torsion balance to locate structure in western Washington is an interesting experiment. It is too early to evaluate geophysical methods in the Pacific Northwest but I am doubtful of any consistent results until some years of study. In most Washington areas such methods will not be needed as the surface geology is sufficient to define folding.

The Ohio Oil Co. will drill shortly, using a rotary, at Aberdeen, Wash.

On Definite Structure

The Sims discovery well is on definite structure and the Ohio Oil Co.'s Aberdeen test is situated on a well defined anticline. The latter test will penetrate the lower Miocene beds, and perhaps be carried into the Oligocene section. Two earlier tests on the same structure, one by the old New York Oil Co. of Casper, the other by the Gray-Tac (Grays Harbor and Tacoma capital) encountered excellent gas showings in sandy shale around 1,400-1,500 feet. These tests were drilled no deeper. Good sands should be found lower in the section, and a natural gas well is confidently expected.

After several years' study of western Washington and western Oregon, it seems to me that there is no longer any reason to question the opening of several commercial oil and gas fields in the western portions of those two states. When paying natural gas is obtained from porous basalt, as is the case in the Rattlesnake Hills area, Benton County, in south central Washington, there is every reason to expect better natural gas wells in a section containing good sands which are capped and underlain by shales carrying considerable organic material.

Interesting Problem

The source of the Benton County natural gas is an interesting problem. Some geologists hold that the gas is derived from the lake-bed material found buried between the layers of basalt while others hold to the theory that the natural gas comes from deeper sources such as the Eocene coal beds or perhaps the Cretaceous beds underlying the section. The natural gas is postulated to migrate from the deeper beds along a fault plane. The Benton County gas is under a 28-ounce pressure and the well volume of flow varies 500,000 to 3,000,000 feet daily. Some 15 wells have been drilled and $10,000 to $12,000 worth of gas is sold monthly to nearby towns.

The numerous good structures found in western Washington and in western Oregon make this area interesting to the "wildcatter." Part of the area is best fitted for rotary drilling; in other parts cable tools can probably be used more efficiently. Each district has its local problems. Also there are 15,000 to 20,000 feet of beds differing in texture and hardness. The opening of new oil fields in Washington will not flood the oil market, even provided large wells are found, for the prospective oil and gas lands are held in large blocks, owned principally by timber companies so that controlled development campaigns can be initiated.

Good Gas Market

The development of oil fields of importance in Washington would affect the California oil market if enough oil were developed at once to enter into serious competition, but it would require several good producing fields and an aggressive development program to produce any marked effect. Under present conditions a rapid development campaign cannot be anticipated. There is, however, an excellent immediate market for natural gas. Portland, Tacoma, Seattle, Bellingham and Vancouver, B. C., with numerous other towns could use from 150,000,000 to 200,000,000 feet of natural gas daily The use of natural gas would displace fuel oil to some extent especially in hotels, apartments, offices, buildings and industrial plants.

There has been some talk of natural gas being brought from Montana and from Wyoming to Seattle and Portland; also the bringing of natural gas from California was seriously considered. None of these sources of supply would be feasible were natural gas found in large quantities in western Washington or in Oregon. There will be no serious attempt to pipe natural gas from other areas until both western Oregon and western Washington have been adequately tested.

Geological advice will largely govern development in Washington as it has done in the California and Rocky Mountain oil and gas fields for the structures are pronounced. Only a few obscure areas are found that will call for core drilling to ascertain dip and strike.

IMPROVEMENT NOTED IN GASOLINE MARKET

(Continued from Page 12)

losses and compete directly in the motor fuel market. The stabilization programs not only provide an outlet for the natural gasoline but also through the losses tend to reduce the volume of material which has to be disposed of in one form or another. The developments of the past two weeks in this connection have demonstrated again the close relationship of the refining and natural gasoline industries, and it is certain that the upturn in the motor fuel market will not materialize until adequate outlets for natural gasoline are found at prices in line with the quotations on the refinery products.

In regard to the desirability of using greater quantities of natural gasoline in motor fuels, sellers are pointing to the success of a Mid-Continent company which is a major manufacturer of natural gasoline and also operates three refineries. This company over a period of years made a study of natural gasoline and refinery blends in relation to car performance, taking into consideration differences in temperatures due to the geographical location and the seasons.

The object of this company has been to blend as much natural gasoline with refinery gasoline as possible with the view of securing the maximum in car performance. Emphasis has been placed on ease in starting and acceleration in the motor fuels sold by this company. This program has also fitted in with the trend toward higher antiknock gasolines for the reason that the motor fuels with the greatest volatility made possible by lower distillation range, in general have the higher octane rating. This company changes the specifications of its motor fuels with the seasons so that during the winter months its own station and jobber requirements absorb the greater part of its natural gasoline output. The percentage of natural gasoline used in certain sections is indicated in the fact that the gravity during the winter months is above 80 A.P.I. In the areas of higher temperatures and during the summer months, the percentage of natural gasoline used is much less due to threat of vapor lock and the larger losses incidental to handling.

It is no secret among competitors of this company that its motor fuel has a wide consumer acceptance. The company's sales per station through its own outlets are said to be much better than the average. The products also have a wide distribution among jobbers. The success of this company possibly points the way out to the natural gasoline industry generally which has seen its products sell under the cost of production for several months.

Gasoline and Naphtha

The improvement previously noted in the grades of domestic gasoline was due primarily to a better demand aided with a smaller supply. On the demand side the warm weather, particularly in the southwestern states has increased consumption to the extent that refining companies have been forced to increase shipments to their own bulk stations and to their jobber outlets.

In the northern states several jobbers apparently believe that prices are on bottom and they are now buying to cover their spring requirements including storage. There have been a number of inquiries in the market seeking flat prices for delivery over March and April.

On the supply side there have been some curtailment of operations. With the crude market firmer due to the apparent settlement of the East Texas problem, refiners who have been hoping for a reduction in posted crude oil prices are now faced with the necessity of paying present quotations and possibly higher prices later in the spring. As has been explained in these columns previously no skimming plant can pay posted prices for crude oil plus a pipe line charge and sell its refinery products on the present tank car market and come out at the end of the month on the right side of the ledger. Realizing this, some refiners have shut down their plants and others have curtailed their operations.

In addition to the curtailment some of the larger refiners are refusing to sell their low octane gasoline and are storing any output in excess of their own station requirements. They expect to reform this straightrun gasoline later and secure a motor fuel with a high octane rating. Several companies either have these reforming units under construction or have definite plans for their installation before the summer demand for gasoline is under way.

On Monday and Tuesday no low octane U. S. Motor gasoline was available in Oklahoma direct to the trade under 2⅞ cents and several sellers who are active in this market had advanced their quotations to 3, 3⅛ or 3¼ cents. The 57-65 octane U. S. Motor gasoline in spot sales was quoted at a low of 3⅜ cents in Oklahoma and above 65 octane 3⅝ cents. The 60-62 400 endpoint grades were quoted one-fourth cent above the U. S. Motor level.

The 390 and 375 endpoint grades are sluggish and price ranges are no higher than they were a week ago. The 390 was freely available at 3⅜ cents and 375 at 3⅝ cents. Both prices could be shaded one-eighth cent on resale material. The 350 endpoint grade was also sluggish at a low of 3⅞ cents.

Kerosene

The kerosene market continues firm. Due to a shut down of a refinery one of the large spot sellers in Oklahoma has become a buyer for delivery over March. It is also apparent that the installation of reforming units to take care of straightrun gasoline and naphtha will also tend to restrict the output of kerosene. One Oklahoma refiner is now storing excess kerosene and this will be reformed later into high octane gasoline. The prevailing market continues at the level of the past several weeks with 2⅝ to 2¾ cents for 41-43 and 2¾ to 2⅞ cents for 42-44.

Tractor Fuel and Furnace Oil

Although there are reports of dumping of furnace oil and tractor fuel in other refining areas, the price ranges on the several grades of these products are unchanged in Oklahoma. Prices on the furnace oils range from 1¾ to 2⅛ cents and tractor fuels are one-eighth cent higher. Some market observers do not believe that there will be any substantial dumping of distillates as the furnace oil season closes. It is claimed that the demand for additional cracking stock during the summer season will tend to offset the decreased consumer demand for the distillates.

Fuels and Gas Oil

Some of the high cold test fuel oil and gas oil has been removed from the market in Oklahoma due to the buying by refiners who are in need of additional cracking stock. These purchases have tended to stiffen all grades of fuel oil and gas oil although price ranges are the same as last week in Oklahoma. There is still some high cold test gas oil available at 1 cent with U.G.I. material under 35 cold test generally bringing 1⅛ cents. Prices on industrial fuel oils range from 22½ to 50 cents per barrel.

Lubricants

One of the largest manufacturers last week reduced its bright stock prices one-half cent. Prices on the several grades of from 100 viscosity to 200 viscosity and from zero to 30 cold test, range from 14 to 18 cents. Similar reductions already have been made by other manufacturers. Prices on neutral oils and wax are unchanged.

Late Fields

(Continued from Page 24)

ers' No. 1 in the NE cor. SE SE Section 15-22-13, is a new location.

Derby Oil Co.'s No. 1 Berscheidt, NW cor. NE SE, Section 12-20-11w, in the Isern Pool, south offset to the discovery well, found the Silicious lime at 3,289 feet, and shot 15 quarts at 3,320-26 feet. It found water at 3,349-52 feet and was plugged back to 3,326 feet. It was shot the second time at 3,295-3,320 feet, and is estimated at 60 bbls. a day.

In the new area 6 miles west of the Ritz-Canton Pool, McPherson County, where Shell Petroleum Corp.'s No. 1 Johnson, in Section 35-19-3w, opened a new producing area, same company's No. 1 Helstrom, SW cor. NE, Section 35-19-3w, was drilling at 200 feet. It is one-half mile northeast of the discovery.

The wildcat test, Rush Petroleum Co.'s No. 1 Ott, in Section 16-19-14w, Barton County, has cleaned up a fishing job and will land 5-inch casing at 3,380 feet.

Palmer and others' No. 1, in the C SE. Section 3-14-11w, southeastern Russell county wildcat, found the top of the conglomerate at 3,260 feet. The 6-inch casing was landed at 3,317 feet, total depth. Will drill deeper after the water which broke in from behind the pipe has been cemented off.

CRUDE OIL PRICE CHANGES

(Continued from Page 78)

lines 5 cents per barrel, making the new price, effective Friday, February 26, $1.50 per barrel. This applies to oil produced in West Virginia.

Effective March 1 the Phillips Petroleum Co. made a change in its prices for the lower grades of crude oil purchased in the Texas Panhandle. Its new prices are: Carson and Hutchinson Counties, below 30 degrees 46 cents; 31 to 31.9 degrees 48 cents, with 2 cents added for each degree upward to 40 and above. In Gray County, below 30 degrees 51 cents; 31 to 31.9 degrees 53 cents, with 2 cents added for each degree upward to 40 and above. Only crudes below 35 gravity are affected by the change.

The Seep Purchasing Agency increased the price of Pennsylvania grade oil in Buckeye Pipe Line Co. lines (oil produced in southeastern Ohio), 5 cents per barrel making the new price $1.30, effective March 1.

UNION OIL PURCHASE

LOS ANGELES, Calif., Feb. 27.—Union Oil Co. of California has increased substantially its interest in Kettleman Hills North Dome through acquisition of a half interest in the Getty holdings which were recently purchased by Shell Oil Co. of California.

Oil Industry Equipment and Supplies

GAS CONSUMPTION IS MEASURED PRECISELY

Byron Jackson Co. has perfected an orifice fitting for the accurate measurement of gas. This product, the BJ duplex orifice fitting, incorporates as its outstanding feature two interchangeable orifice plates — of any specified orifice diameter, or one blank—contained within a single fitting.

Extremely accurate metering is possible by using the two plates with different sized orifices when a fluctuating load must be measured. The gas consumption of pilot lights and small burners, previously disregarded or estimated, can be metered accurately. Another advantage, where a fixed orifice is required, is that a blank plate can be installed in reserve in the upper chamber for use in an emergency. This combination provides the operator with a single-disc valve at no extra cost. A padlock can be applied to lock this blank plate in position, guaranteeing a tamper-proof shutoff when service has been discontinued.

A further feature is the ease with which the plates can be changed. The operation of changing to a plate with an orifice of different diameter is accomplished with absolute safety, according to the manufacturer, by an inexperienced worker in less than one minute. A turn of two cranks, and the job is done. No tool other than the change-wrench is required.

Additional features assure positive centering of the orifice. The body is cast from a special corrosion-resistant nickel semisteel. All working parts are made from high quality materials machined to exact specifications. The shutoff valve is of the pressure-seal, wedge type, constructed of bronze, and requires no lubrication. A sediment chamber and tamper-proof locking feature are provided. Flanges and meter tap arrangement are of standard specifications.

The BJ orifice fitting is small and light, making it convenient for installations where space is limited. Two types are manufactured, one for working pressures up to 150 pounds, and another for 500-pound pressures. An illustrated folder containing complete details is available by addressing Byron Jackson Co., 2150 East Slauson Avenue, Los Angeles, Calif.

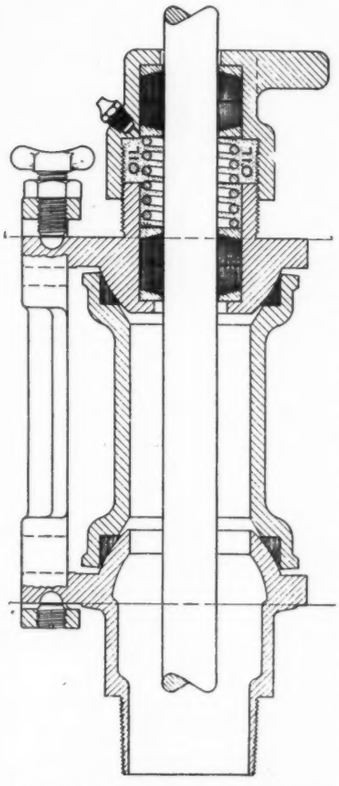
REPRESENTS BARBER-GREENE

The Barber-Greene Co. of Aurora, Ill., manufacturer of standardized material handling machines, has appointed the Boehck Equipment Co. of Milwaukee to represent it in Wisconsin. The Boehck Equipment Co. is a new organization with offices and warehouse at 2404 West Clybourn Street.

ALLEVIATES STRESS ON STUFFING-BOX PACKING

The Hill & Foster Co., of Wichita Falls, Tex., has put on the market a stuffing-box designed to alleviate the lateral stress on stuffing-box packing and to supply a lubricant to the polished rod at all times. The stresses are relieved by allowing the box to follow the rod in its various movements. Hence the name "Folorod" was chosen. The lateral motion of the rod is controlled by shoulders arranged in the ball joints so that the travel is limited to the difference between the diameter of the rod and the inside diameter of the tubing.

A bath of oil is provided by dividing



the packing, as shown in the illustration, and filling the space between the upper and lower sections of packing with a suitable lubricant through an alemite cup, so that at all times the polished rod will be covered with a film of protection from friction as well as the action of salt water and other chemicals present in the fluid pumped.

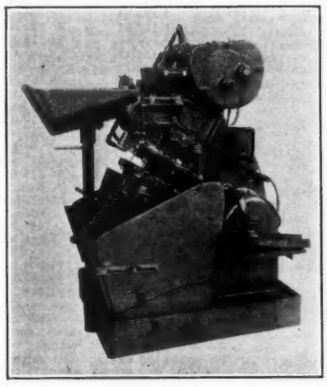
At the same time the Hill & Foster Co. is marketing a device, the Folorod attachment, to be used in connection with an ordinary stuffing-box. In place of the stuffing-box in the top flange of the Folorod, the Folorod attachment has regular tubing threads into which an ordinary stuffing-box will be screwed. This relieves the lateral stresses, but does not give the benefits of a lubricated polished rod.

A broadside sent out by the Caterpillar Tractor Co., Peoria, Ill., announces a new model tractor, the Sixty-five, a step-up in size from the Sixty.

Lee B. Mettler Co., 406 South Main Street, Los Angeles, Calif., is mailing a folder describing Mettler entrained combustion gas burners.

LANDIS ATTACHMENT FOR MACHINE BROADENS USES

The Landis Machine Co., Inc., of Waynesboro, Pa., has developed a stud attachment for its three-quarter-inch automatic forming and threading machine



which gives it a production rating of 200 to 500 per cent as a stud machine. This high rating is due to the fact that the loading (and unloading), pointing and threading operations are performed simultaneously at three separate stations. Another feature of the attachment is its ability to handle sheared blanks. This unusual practice saves material, eliminates the more expensive cutting-off operations and reduces the manufacturing cost.

The attachment consists of a hopper and a magazine. An agitator at the base of the hopper affords an orderly and uninterrupted flow of the blanks to the magazine. From the magazine the blanks are fed, one at a time, to a slot through which they drop into an auxiliary magazine. The auxiliary magazine is a sectoral chamber which positions the blanks for transfer to the loading station of the turret.

For the second operation, the semi-finished studs are stacked in the hopper with their blank ends at the front. The front wall of the hopper is hinged and can be dropped to facilitate loading. The pointing head takes care of variations in the length of the blanks and insures studs of uniform length. It will also point blanks of uniform length with the minimum amount of waste.

The attachment is a self-contained unit which can be applied to machines in service. It is adjustable and will accommodate studs from one-quarter-inch to three-quarters-inch in diameter, from 1½ to 6 inches in length and a 2½-inch maximum thread length. The unthreaded section of the stud cannot be less than 75 per cent of the diameter. The attachment can be applied and set up in 30 minutes, according to the manufacturer.

ELECTRODE FOR WELDING ALUMINUM IS DEVELOPED

The Lincoln Electric Co., Cleveland, Ohio, announces "Aluminweld," a new electrode for welding aluminum. It is a 5 per cent silicon aluminum alloy and can be used for welding sheet or cast aluminum. It is designed for either metallic or carbon arc welding.

The electrode is provided with a coating which prevents excessive oxidation and will dissolve any aluminum oxide that might be formed. The manufacturer asserts that the coating assists in giving a smooth operating arc which is particularly essential in welding aluminum. The resulting weld is dense without porosity and possesses high tensile strength. It is said the weld can be polished satisfactorily with practically no discoloration.

HAND LAMP IS SAFE IN GASEOUS ATMOSPHERES

Models K and H electric hand lamps, a new product announced by the Mine Safety Appliance Co., Pittsburgh, Pa., are offered as absolutely safe in gaseous atmospheres and have been approved by the U. S. Bureau of Mines. Tank gaugers, meter readers and all oil field, refinery and pipe line workmen whose duties require them to enter zones made dangerous by the presence of explosive gases may use these lamps without hazard, according to the manufacturers.

These permissible hand lamps consist of standard Edison model H and model K nickel-iron alkaline mine lamp batteries, respectively, each with magnetically locked, detachable cover. The headpiece is fabricated from bakelite and

Model K hand lamp.

may be equipped with either polished or matte surfaced reflector. The highly efficient, two-filament, gas-filled bulb is operated by a switch on the head-piece.

When equipped with polished reflectors, the models H and K hand lamps may be used as spotlights, developing 350 and 600 beam candlepower, respectively. Where a spread of light is required, the matte reflector is recommended. The lamps are available with key-lock, if desired, but are not officially approved with it.

OVER $250,000 FOR RESEARCH

Spending over $250,000 in research and the development of new products during periods of slack business is the Pittsburgh Equitable Meter Co.'s way of expressing its faith in the future of the gas industry. It is understood that this program will be continued indefinitely. As a result of this expenditure the following new products have been developed as additions to the company's line of meters and regulating equipment. The Emcorector for making high pressure positive meters direct reading; the Emco No. 4½ pressed steel meter, a compact, large capacity meter for measuring industrial and heating loads; the Emcoloader, a device which automatically increases the outlet pressure whenever the demand on the outlet side of a regulator is increased; the Telemco system, a method of transmitting gauge pressures, meter records or any other required instrument records over any distance up to 100 miles; the Emco-McGaughy integrator for quickly and accurately calculating orifice meter charts.

Texas Gross Production, Fourth Quarter, 1931

Name—	Barrels	Value
A		
Adams & McGahay, Amarillo (9-30-31)	2,239.10	$1,007.60
American Refining Properties, Wichita Falls	690.42	542.78
Almeda Oil Corp., Luling	6,800.00	5,497.00
Adams & Prince, Amarillo (9-30-31)	17,727.93	7,615.58
Alaska Petroleum Co., Amarillo	844.39	531.98
Arrow Head Oil Co., Dallas	579.28	421.93
Amerada Petroleum Corp., Tulsa, Okla.	280,334.04	193,371.10
Arkansas-Louisiana Pipe Line Co., Shreveport, La.	3,219.84	2,378.10
Peter Adamson, Jr., Tulsa, Okla.	322.87	297.18
Alma Petroleum Corp., Oklahoma City, Okla.	65,220.29	49,893.29
Atkinson & Sandefer Corp., Breckenridge	8,710.68	6,562.86
Apollo Oil Co., San Angelo	5,817.16	2,617.16
American Refining Properties (R.M.W.), Wichita Falls	1,538.46	1,183.25
American Refining Properties (M.J.B.), Wichita Falls	2,177.99	1,708.60
American Refining Properties (W.M.P.), Wichita Falls	3,482.45	2,370.56
Aarco Oil & Gas Co., Baltimore, Md.	5,109.54	4,025.13
Aaron Cohen, Baltimore, Md.	20,153.61	10,243.61
Arco Oil Co., Wichita Falls	20,538.46	12,174.40
Adams & Prince, Amarillo	4,402.15	2,441.64
Abe Raizen and Sam Raizen (Raizen Bros.), Chickasha, Okla.	9,568.27	5,616.17
Arrow Oil & Gas Co., Fort Worth	13,530.71	10,353.29
American Refining Properties, Wichita Falls	34,883.27	21,033.66
Allbritain, F. J., Markley	762.59	600.98
Adams & Rowe, Inc., Bethany, La.	9,941.31	8,117.63
T. C. Adams, Bethany, La.	17,170.66	12,228.51
Argars Oil Co., Austin	81.94	50.41
Andrews Petroleum Corp., New York, N. Y.	2,838.96	1,917.64
American Maracaibo Co., New York, N. Y.	111,671.53	54,226.64
Adams & McGahay, Amarillo (6-30-31)	2,090.98	940.89
Adams & Prince, Amarillo	12,803.02	7,468.05
Adams & Prince, Amarillo (6-30-31)	18,579.86	7,839.97
Adams & McGahay, Amarillo	1,797.70	808.97
Acme Oil Co., Longview	11,716.47	9,517.76
Abraham, Earl, Bridgetown	513.71	397.71
Abercrombie, J. S., trustee, Humphreys Corp., Houston	5,940.37	3,675.58
Atlantic Oil Producing Co., Dallas	15,795.74	13,180.54
Alco Royalty Corp., Tulsa, Okla.	31,896.09	24,952.75
Artex Oil Co., Wichita Falls	816.57	624.49
Adams, Dr. Walter B., Wichita Falls	342.90	270.26
Alma Campbell, Fort Worth	329.03	249.54
Ajo Oil Corp., Dallas	19,533.28	10,547.09
Anchor Oil Producing Co., Dallas	505.82	262.08
Anchor Oil Producing Co., Dallas (9-30-31)	568.85	244.80
Amicable Life Insurance Co., Waco	360.00	180.00
Ama-Gray Oil Co., Pampa	8,176.37	4,805.48
Allied Oil & Gas Co., Laredo	62,673.07	43,746.72
Allday Oil Corp., Wichita Falls	199.52	105.67
Act, J. L., Wichita Falls	506.56	393.85
Atlantic Oil Producing Co., Dallas	837,401.65	508,479.61
Alamosa Oil Co., Amarillo	6,648.69	3,382.65
Alamo Oil Co., Brownwood	562.00	261.00
Adams & Lyles, Lockhart	18,650.90	12,869.12
Adams & Lyles, Lockhart	6,947.54	5,766.45
Adams & Lyles, Lockhart	3,588.39	2,045.38
Adams & Lyles, Lockhart	1,251.82	926.34
Anderson Drewery Corp., Cisco	4,617.00	3,657.66
Alpine Oil & Dev. Co., Alpine	4,273.90	1,495.86
Arab Gasoline Corp., Eastland	1,524.72	1,154.54
Adams & Prince, Amarillo (6-30-31)	7,296.23	2,845.22
Adams & Prince, Amarillo (9-30-31)	7,248.08	3,128.96
Apple-Brandeberry Oil Co., Wichita Falls	6,698.95	3,355.15
Anderson & Co., Inc., and Cameron Anderson Rusk Co. Properties, Inc., Fort Worth (6-30-31)	41,879.45	8,087.46
Ada Belle Oil Co., Batson	14,820.75	9,711.18
Allen, W. E., receiver for L. C. Turman, Fort Worth	23,132.92	40,259.56
Abercrombie, J. S., Co., Inc., Houston	160,307.56	98,658.79
Andrews, W. R., Breckenridge	359.70	281.85
Arrow Refining Co., Fort Worth	12,856.59	9,807.07
Arkansas Fuel Oil Co., Shreveport, La.,	710,627.00	552,896.49
Arcadia Refining Co., Tyler	71,216.04	55,639.59
A. & P. Production Co., Houston	23,599.31	16,189.84
Alworth-Stevens-Hild Co., New York, N. Y.	133.04	79.82
Acorn Oil Co., Beaumont	5,981.27	3,943.78
Adams, Harry, Co., Midland	16,915.69	7,461.38
Anderson & Co., Inc., and Cameron Anderson Rusk Co., Properties, Inc., Fort Worth (9-30-31)	44,865.49	11,244.97
Apple-Brandeberry Oil Co., Wichita Falls	6,181.57	3,070.00
Anderson & Co., Inc., and Cameron Anderson Rusk Co. Properties, Inc., Fort Worth (9-30-31)	65,442.75	16,149.73
Anderson & Co., Inc., and Cameron Anderson Rusk Co. Properties, Inc., Fort Worth (6-30-31)	92,780.90	12,430.74
Adolph, A. Geyer., and R. G. Storey, Dallas	6,678.14	4,510.41
Armstrong, W. J., Cisco	986.93	786.16
B		
Bettison, Hillary N., Tyler (6-30-31)	4,363.63	3,621.82
Brazelton Brothers and Williams, Graham (9-30)	4,436.18	3,474.89
Barker & Pardue, Breckenridge	15,030.36	10,311.62
Hernice Oil Co., Saratoga	11,142.36	6,006.66
Biggs Oil & Gas Co., McKinney (9-30-31)	715.00	381.67
Baker, James Blair, and C. F. Camp, trustee "C" lease, Wichita Falls	1,071.72	782.82
Biggs Oil & Gas Co., McKinney	821.00	670.21
Barnes, J. B., Electra	6,607.51	4,602.54
Burkburnett Production Oil Trust, Baltimore, Md.	711.92	525.72
Big State Oil Corp., Houston	856.68	701.70
Bell Oil & Gas Co., Tulsa, Okla.	9,967.00	6,501.14
Brownlee-Pope Oil Co., Austin	695.82	927.76
Brownlee-Pope Oil Co., Austin (9-30-31)	570.85	761.13
Braden Co. & Express Trust, The, Tulsa, Okla.	1,647.81	1,203.98
Balin, D. H., trustee, Graham	4,652.88	3,739.52
Bell & Graddy, Inc., Dallas	13,464.67	11,175.67
Brown, Dr. E. W., estate, Orange	3,493.24	2,313.74
Black, W. A., Midland	819.89	516.91
Borealis Oil Co., Oklahoma City	2,488.60	1,913.63
British American Oil Producing Co., Tulsa, Okla.	233,936.55	212,944.26
Ball Oil Corp., Henderson	19,727.32	5,063.70
Brogan, J. H., trustee, Tyler	13,031.96	9,960.63
Booth, C. H., Jr., trustee M. V. Lawrence A and B lease, Taylor	2,147.05	1,134.70
Bob, W. C., and W. W. Richey, Bruni	1,414.21	973.12
Burch, G. R., Wichita Falls	1,586.35	1,280.92
Beard & Hammond Oil Co., Fort Worth	43,820.48	33,749.99
Bowers Oil Co., Vernon	1,052.65	791.65
Black Cat Oil Co., Tyler	789.88	600.86
Bolin & Lindsay, Graham	25,739.09	22,388.31
Boone Refining Co., Inc., Arp	8,444.00	6,749.32
Baker, James Blair, Jr., and C. F. Camp, trustees, Wichita Falls	12,362.50	8,865.82
Baker, James Blair, Jr., et al, Wichita Falls	2,603.16	1,859.80
Bazzoon, G. A., Vernon	171.58	115.28
Beggs, George, & Strip, Fort Worth	1,786.87	1,866.78
Bashara, M. J., & Sons, Wichita Falls	1,187.70	535.21
Brazos River Gas Co., Mineral Wells	29,202.12	23,706.91
Bond-Johnson-Foster (J. B. Bond), Longview	4,945.53	4,104.79
Bourbon Royalty Co., Dallas	1,873.62	1,401.08
Brady Brothers, Minerva	572.29	315.58
Brannon & Munay, Abilene	3,886.29	3,158.25
Brown & Lickey, Wichita Falls	348.31	308.18
Bishop Corp., San Francisco, Calif.	29,966.85	23,378.40
Baldwin, F. C., et al, Fort Worth	3,062.78	2,545.18
Barbara Oil Co., Chicago, Ill.	1,737.68	1,363.27
Big Indian Oil & Development Co., The, Gainesville	12,453.09	9,713.41
Badger Oil Co., Amarillo	16,999.06	12,321.31
Beard & Hammond Oil Co., Fort Worth (6-30)	333.32	164.93
Beard & Hammond Oil Co., Fort Worth (9-30)	20,571.03	6,827.13
Brown Farm Oil Co., Fort Worth	857.86	693.86
Bailey & Gilliland & Fannie Bailey, Wichita Falls	860.61	632.92
Blackwell Oil & Gas Co., Cushing, Okla.	60,491.90	46,809.92
Bohner, C. J., et al, Burkburnett	8,932.40	8,548.79
Bohner, Crenshaw & Whitehill, Burkburnett	6,822.58	5,499.39
Britton & Gordon, Strawn	521.70	415.36
Brown, H. L., Fort Worth	3,571.10	2,039.26
Burnham, J. M., et al, Fort Worth	12,251.01	9,435.29
Byrd-Frost, Inc., Dallas	75,840.08	59,136.58
Baker, J. A., Breckenridge	471.76	326.43
Bowles, Robert, Oil Co., Laredo	14,459.93	11,253.57
Boller, C. W., Wichita Falls	24,860.36	19,257.11
Big Indian Oil & Development Co., Gainesville (9-30-31)	3,684.25	2,505.29
Bunte, C. B., Inc., Tyler (9-30-31)	4,017.02	2,731.57
Baker, J. F. and H. E., Breckenridge	2,489.00	1,836.49
Baker, J. A. and Mollie B., Breckenridge	6,192.00	4,548.06
Baker, Mollie B. and Fred R., Breckenridge	430.00	322.50
Bass & Dillard, Wichita Falls	1,152.21	883.87
Bowman Oil Co., Rockdale	313.32	158.44
Bohner, C. J., Oil Corp., Burkburnett	12,974.01	9,503.67
Black & Dittman, Fort Stockton (9-30-31)	1,881.00	461.30
Black & Dittman, Fort Stockton (6-30-31)	1,775.00	310.62
Black et al, Fort Stockton	3,010.83	710.14
Bayless, A. A., Fort Worth (9-30-31)	864.22	415.69
Burton Drilling Co. et al, Tyler (9-30)	99,779.75	22,807.57
Black-Knight Co., Longview	20,790.92	12,265.08
Beard, J. G., Tyler	17,166.96	12,695.25
Bartlett Production Co., Rockdale	478.80	258.95
Bagby, Logan H. (trustee), Tyler	12,758.40	9,920.23
Bill & Dave Oil Corp., Shreveport, La.	26,200.31	19,649.82
Bradstreet, L. G., Co., Fort Worth	28,925.52	21,884.83
Boardman & Ulrich, Corsicana	1,513.00	1,104.71
Black-Knight Co., Longview	3,605.39	2,992.48
Big Lake Oil Co., Pittsburgh, Pa.	1,439,040.82	1,086,776.26
Butler, J. A., Albany	91.50	64.72
Black & Stroube, Dallas	12,658.90	9,734.32
Baldwin-Sultan Oil Co., Walters, Okla.	11,386.05	7,340.26
Barnsdall Oil Co., Tulsa, Okla.	319,282.63	242,654.80
Belknap Oil Co., Wichita Falls	11,169.09	8,878.54
Bell, E. S., Wichita Falls	39.07	31.65
Bexata Oil Co., San Antonio	590.06	433.34
Black & Stroube, Dallas (6-30-31)	783.80	117.57
Black & Stroube, Dallas (9-30-31)	16,183.98	5,388.89
Black et al lease, Fort Stockton	2,324.37	522.98
Black, Buster, et al, C. S. Messinger, trustee, Royalty	7,426.96	2,599.44
Black & Dittman, Fort Stockton	2,599.01	585.08
Bridwell & Heydrick, trustee, Wichita Falls	1,333.90	1,066.11
Bridwell & Mayfield, Wichita Falls	4,771.12	3,828.98
Bridwell Oil Co., Wichita Falls	108,405.88	75,605.76
Bunte, C. J., Inc., Tyler	19,338.09	15,256.91
Buttram, Frank, Oklahoma City, Okla.	980.94	566.24
Buttram Petroleum Corp., Oklahoma City, Okla.	28,986.32	23,030.67
Blackstock, H. L. (Harry), Oklahoma City, Okla.	12,225.76	9,248.95
Blackstock Oil Co., Oklahoma City, Okla.	12,567.68	9,621.61
Bohmer, C. F., Kansas City, Kans.	106.73	72.37
Brann, Lee, Glendale, Calif.	298.95	225.49
Brogan, J. H., trustee, Tyler (9-30)	13,939.67	4,637.20
Bynum & Palmer, Rockdale	165.31	83.69
Buck Oil Corp., San Antonio	17,569.69	14,848.63
Buchanan, A. A., San Antonio	16,260.68	14,265.66
Bowser & Beckett, Dallas	13,838.38	10,069.74
Bonner Co., Wichita Falls	13,892.00	10,629.09
Bates, R. P., Tulsa, Okla.	3,044.91	2,527.27
Biel, William A., Von Ormy	78.00	39.00
Burton Drilling Co., Tyler	37,655.64	25,615.43
Bluebonnet Oil Co., Wichita Falls	330.74	255.43
Bailey, Carl B., Wichita Falls	6,013.27	4,724.09
Bailey & Trimble, El Dorado, Ark.	6,867.61	5,700.11
Bayless, A. A., Fort Worth	823.10	625.13
Bay Oil Corp., Tulsa, Okla.	36,099.64	29,962.70
Benedum-Trees Oil Co., Pittsburgh, Pa.	910.40	682.40
Bishop Corp., San Francisco, Calif.	29,966.85	23,378.40
Burns, L. T., Wichita Falls	66,048.50	51,695.35
Burk Burnett, Jr., Oil Co., Fort Worth (9-30-31)	277.50	117.32
Burk Burnett, Jr., Oil Co., Fort Worth	293.71	204.50
Bynum, W. W., estate, Rockdale	684.92	370.07
C		
Cunningham & McDonald, Loving	530.06	416.71
Crabb & McNeel, San Angelo	722.38	588.38
Claggett & Evans, Mirando City	1,792.44	1,276.09
Comet Petroleum Co., Fort Worth	1,430.00	640.80
Crown Central Petroleum Corp., Houston	31,344.35	21,832.46
Crown Oil & Refining Co., Houston	7,643.25	6,745.81
Cloud, Jim, Inc., Tulsa, Okla. (9-30)	26,519.86	10,362.08
Continental Oil Co., Ponca City, Okla.	1,193,547.51	913,709.51
Clem Oil Co., Houston	285.00	176.70
Crenshaw Oil Corp., Wichita Falls	4,375.74	3,631.86
Coastal Drilling Co. of Louisiana, Inc., Tyler	12,153.18	9,305.44
Cash & Coleman, care S. L. Laird, receiver, Kilgore (9-30-31)	6,009.22	2,655.67
Culbertson Co., Wichita Falls	6,433.94	5,140.57
Cosden, J. S., Inc., Fort Worth	2,887.02	3,822.40
Camp., John F., San Antonio	88,670.08	50,879.59
Castlebury, S. A., Vernon	291.42	210.49
Collins, J. L., & Co., Corsicana	33,856.95	26,359.40
C. P. Oil Co., Henderson	97,632.98	48,300.68
Clark, C. W., Wichita Falls	2,880.47	2,285.96
Champlin Refining Co., Enid, Okla.	109,306.55	73,077.25
Carlin, W. W., Ranger	416.39	316.46
Conway Brothers, Ranger	3,125.93	2,430.11
Cisco Oil Co., Tulsa, Okla.	7,510.61	5,230.38
Church & Weekly, Fort Worth	19,435.97	8,244.94
Champlin & Bass, Inc., Holdenville, Okla.	45,758.39	35,473.38
Culbertson Brothers Co., Fort Worth	27,900.75	10,350.27
Corvette Oil Corp., Fort Worth	9,530.48	4,068.40
Collie, B. F., Breckenridge	1,136.08	906.17
Collie, B. F., Breckenridge (9-30-31)	1,108.59	539.47
City National Bank, Wichita Falls	833.38	666.05
Campbell, R. S., Humble (9-30-31)	778.75	371.26
Campbell, R. S., Humble (6-30-31)	899.20	546.92
Concord Oil Co., Dallas	12,656.96	9,567.19
Cornelius Kroll, trustee, Tulsa, Okla.	14,140.61	10,831.11
Clark, R. R., Wichita Falls	8,206.10	6,506.93
Cullen, H. R., et al, Houston	2,709.84	1,818.58
Cherokee Chief Oil Co., Gladewater	26,149.44	18,679.81
Cezeaux, P. C., Humble	4,366.39	2,848.05
Centennial Oil & Gas Co., Dallas	44,582.00	29,326.75
Condor Petroleum Co., Abilene	8,361.06	3,822.97
Cranfill-Reynolds Co., Houston	557,883.77	382,155.25
Cowden & Fogodon, Duncan, Okla.	7,578.35	2,858.45
Cole Petroleum Co., Laredo	11,518.16	8,177.48
Clark & Cowden Drilling Corp., Duncan, Okla.	48,152.72	36,688.54
Colline Oil Corp., Oklahoma City, Okla.	1,568.92	1,228.80
Chatham Oil Co., Tulsa, Okla.	8,799.62	6,750.93

(Continued on Next Page)

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1931

Name—	Barrels	Value
Cullum, F. P., Wichita Falls	16,243.97	12,463.30
Cullen & West, Houston	511,530.33	351,281.76
Cornhusker Oil Co., Lincoln, Nebr.	1,122.22	777.63
Carey, E. S., et al (E. S. Carey and Miller Drilling Co., Wichita Falls	261.75	176.67
Carey, C. W., Wichita Falls	4,510.46	3,369.29
Carbett, J. T., and R. V. Tidwell, Graham	746.83	566.88
Collins-Lanier Syndicate, Shreveport, La.	13,034.09	9,930.96
Clark, R. R., et al, Wichita Falls	19,744.40	15,745.36
Chenault, W. L., Amarillo	267.83	214.17
Chapman, E. L., Fort Worth	121,296.69	75,229.35
Cashdollar & Snyder, Brownwood	83.88	59.55
Cox, Edwin B.—Texas leases, Ardmore, Okla.	1,170.74	841.33
Cox, Edwin B., and Jake L. Hamon, Ardmore, Okla.	50,905.25	39,317.84
Como Oil Corp., Henderson (9-30)	5,578.56	3,650.66
Charter Oil Co., Brownwood	3,416.30	2,566.18
Cordova-Union Oil Corp., Fort Worth	122,729.75	94,589.40
Conservative Oil Co., Dallas	50,619.29	38,919.82
Columbia Oil & Gas Co., Dallas	92,197.61	67,903.28
Clayton Key Oil & Gas Co., Amarillo	4,343.35	2,774.32
Capitol Oil Co., Orange	187.34	103.04
Croft & Connor, Inc., Fort Worth	4,289.00	2,465.92
Craig & Lowrie, Pittsburgh, Pa.	915.20	565.72
Combs, E. E., Long Beach, Calif.	25,312.44	19,395.81
Clarkson, William, Jr., Houston	4,159.69	3,095.41
Cardinal Oil Co., San Angelo	40,644.82	14,306.04
California Co., Dallas	1,168,225.00	537,347.40
Christie Brothers, Wichita Falls	23,492.67	18,638.70
Cady, C. C., Moran	253.94	155.70
Cuno, Mrs. Bertha, et al, Moran	1,300.43	928.08
California Petroleum Corp. of Venezuela, Shreveport, La.	169,280.41	136,805.43
Champlin & Bass, Inc., Holdenville, Okla.	15,840.05	13,325.12
Coppock & Coleman, Iowa Park, Tex.	10,570.00	8,293.37
Cushing Refining & Gasoline Co., Cushing, Okla.	6,712.53	3,029.36
Clay, J. D., Houston	2,837.83	1,842.82
Crosbie, J. E., Inc., Tulsa, Okla.	3,309.12	1,791.84
Caruthers Co., San Antonio	1,078.47	655.42
Clark Buffalo Oil Corp., Buffalo, N. Y.	461.69	333.35
Connell, Wixson & Frazier, El Dorado, Kans.	925.28	518.16
Campbell, J. M., San Antonio (9-30-31)	21,740.97	7,528.74
Charlesworth-Messinger Oil Co., Camey, Tex.	1,975.68	532.45
Cable Oil Co., Wichita Falls	7,359.95	5,641.18
Camp Oil & Gas Co., Wichita Falls	418.74	311.17
Clyde Cockerham et al, Shreveport, La.	14,527.49	11,118.62
Cole, W. C., Wichita Falls	1,140.23	557.33
Cal-Tex Corp., Kilgore	12,184.00	9,357.22
Clear Lake Oil Co., Rockdale	536.78	292.08
Coffield & Hale Oil Co., Rockdale	966.01	502.07
Cornelius Kroll, trustee, New Orleans, La.	1,769.32	1,203.13
Cashdollar & Snyder, Brownwood (9-30)	149.99	70.50
Cashdollar & Snyder, Brownwood (6-30)	172.82	63.29
Consolidated Oil Co. of Texas, Wichita Falls	82,746.99	39,951.91
C. R. & M. Drilling Co., San Antonio	15,138.08	12,112.35
D		
D. & L. Production Co., Houston	47,604.26	36,659.68
Davis Oil Corp., Vernon	35,095.14	25,654.39
Davis, Roy, et al, Tyler	1,320.21	1,095.77
Davis, Roy, et al, Tyler	12,459.71	9,525.42
Daniel Drilling Co., Wichita Falls	2,805.09	2,176.93
Darby Petroleum Corp., Tulsa, Okla.	33,122.33	25,242.25
Dimham Oil Corp., Shreveport, La.	19,715.96	15,489.50
Duncan & Bolt, Dallas	13,219.54	10,204.76
Developers Oil & Gas Co., Wichita Falls	327.00	261.94
Dunigan Brothers, Breckenridge	2,314.77	1,304.72
De Arman Brothers and Tip De Arman, Tyler	31,204.45	24,494.93
Deep Rock Oil Corp., Tulsa, Okla.	49,502.85	39,107.15
Deep Rock Oil Corp., Tulsa, Okla.	37,393.51	28,489.62
Derby Oil Co., Wichita, Kans.	6,170.34	4,517.42
Derby Oil Co., Wichita, Kans.	1,855.06	1,192.76
Derby and Haines Oil Co., Wichita, Kans.	2,967.47	1,802.89
Detroit Texas Development Co., Luling	473.00	283.80
Duffield & Howard Oil Co., Tulsa, Okla.	552.30	257.16
Driscoll, R., estate, Corpus Christi	16,864.47	11,614.30
Devonian Oil Co., Tulsa, Okla.	108,363.81	49,516.12
Dale & Crawford, Electra	373.31	289.52
Dale-Knotts Oil Co., Wichita Falls	294.04	235.54
Donley & Chastain, Tyler	12,102.61	9,270.28
Dean & Adkisson, Fort Worth	21,012.42	15,001.98
Dye & Gillette, Tulsa, Okla.	17,899.51	10,505.51
Dunaway, J. E., et al, Wichita Falls	1,482.69	1,084.96
Douglas Brothers and Johns, Electra	913.71	513.13
Darby Lynde Co., Tulsa, Okla.	14,843.46	11,162.13
Douglas Brothers Oil Co., Electra	1,195.42	958.32
Douglas Production Co., Electra	3,206.48	2,378.38
Duval Oil Corp., San Antonio	238,378.18	167,419.57
Dale, Jack B., Wichita Falls	2,235.17	1,743.14
Dale Oil & Refining Co., Wichita Falls	9,137.49	5,995.37
Dixon Creek Oil & Refining Co., Amarillo	171,128.39	105,823.04
Dudleys, Golding, Dallas	4,136.21	3,148.31
Duno Oil Co., Houston	1,049.73	683.21
Den Wich Oil Co., Abilene	656.77	506.38
Deep Oil Development Co., Wichita Falls	28,911.03	23,364.76
Dunning, William H., Jr., Fort Worth	12,049.41	9,169.16
Duke, W. R., Wichita Falls	15,054.06	11,362.53
Drough-Smith Oil Co., Marshall	19,241.44	15,257.27
Devonian Oil Co., Tulsa, Okla.	171,273.84	149,694.47
Duncan, T. H., Fort Worth	11,524.85	8,404.42
Derosa Oil & Gas Co., Amarillo	8,923.06	5,935.11
Duquesne Oil Corp., Eastland	402.79	279.52
Delaney, W. A., Jr., et al, Ada, Okla.	13,418.17	10,267.53
Dink Oil Co., Tyler	7,956.62	6,343.95
Da-Mac Oil Corp., San Antonio	20,666.80	16,188.78
Dyck Oil Co., Tulsa, Okla.	21,937.42	16,588.48
E		
Eastland Oil Co., Fort Worth	39,077.59	18,780.52
Ellis & Anderson, San Antonio	41.08	24.64
East Store Oil Co., Henderson	13,309.47	10,283.47
Eppenauer, E. L., trustee, Fort Worth	394.71	303.61
Edson Petroleum Co., San Angelo	13,500.77	10,401.35
Earle, E. S., et al, Fort Worth	12,904.00	9,873.77
El Rio Oil Co., Amarillo	366.27	168.82
Emerald Oil Co. of Texas, Winfield, Kans.	7,719.88	4,836.46
Everts, C. A., Dallas	42,792.58	33,362.12
Estes, Joe E. (Pat Pool lease, Rusk County), Tyler	12,540.89	9,586.52
Engle, E. A., Albany	2,630.00	2,012.84
Etex Oil Co., Dallas	12,827.89	9,862.38
Empire Gas & Fuel Co. (Maine), Bartlesville, Okla.	524,862.75	380,562.87
East Texas Refining Co., Dallas	600,975.65	455,807.45
Easton, E. S., Wichita Falls	714.35	511.23
Eppenauer, A. R., San Angelo	1,583.34	554.17
Erie Investments, Ltd., of Texas, Toronto, Canada	378.93	171.50
Etnyre Petroleum Corp., Tyler	12,624.54	9,619.67
Eubank, R. O. and B. K., Coleman	480.00	367.00
Estelle Oil Co., Beaumont	526.08	341.68
Estelle Oil Co., Beaumont	177.73	97.75
Electra Production Co., Inc., Electra	623.04	474.30
Eddleman & Payne, Inc., Fort Worth	3,081.16	2,424.86
Ellis & Dubose, Fort Worth	1,187.68	779.44
Ernest Oil Co., Rockdale	80.66	33.07
East Batson Oil Co., Batson	10,767.69	6,993.14
Eddy Oil Co., Beaumont	435.65	264.60
Eppenauer, A. R., San Angelo	5,432.89	2,482.05
East Store Oil Co., Henderson (9-30-31)	10,674.71	4,049.96
F		
Farley, George E., McCamey	11,035.18	5,135.56
Flynn, W. B., Inc., Beaumont	7,223.51	4,945.03
Farnish & Ireland lease, Houston	5,395.71	3,484.11
Fraser, H. H., Wichita Falls	11,778.63	5,725.18
Freddie Palmer Oil Co., Rockdale	69.30	27.03
Fox, Wood, Oklahoma City, Okla. (9-30-31)	5,248.78	3,569.17
Fox, Wood, Oklahoma City, Okla.	11,964.31	9,154.20
Farlyn Oil Co., Houston	6,297.90	3,513.38
Foster & Jefferies, Dallas	26,510.91	20,278.37
Franklin, E. J., and M. J. Sullivan, Kansas City, Mo.	292.38	220.95
Flannery & Bradley, Gladewater	12,127.13	9,290.06
Federated Oil Co., Wichita Falls (9-30-31)	24,331.41	12,770.71
Federated Oil Co., Wichita Falls	94,154.60	72,608.57
Fair, R. W., Oil Co., Tyler	7,590.82	6,171.46
F. H. E. Oil Co., Fort Worth	116,736.05	90,566.39
Fulton, Tom, Wichita Falls	216.65	493.70
French Oil Corp., Laredo	20,945.25	14,641.78
Franklin, Wirt, Petroleum Corp., Ardmore, Okla.	.....	5,644.08
Falvey, J. C., Longview	6,791.79	5,637.18
Freeman-Hamton Oil Corp., Wichita Falls	4,889.05	3,745.64
Fleming-Kimbell Corp., Fort Worth	71,987.33	57,840.12
Fleming & Kimbell, Fort Worth	3,443.68	1,898.72
C. & C. Fuel Co., Lockhart	3,703.00	1,851.50
Fultz, W. B., et al, J. J. Scott farm, Graham	3,426.22	2,649.05
Fresno Oil Co., Burkburnett	27,029.01	20,349.21
Flanagan Production Co., Inc. (La.-Tex. Oil Corp.), Longview	12,531.35	9,558.62
Flanagan Production Co. (No. 1 Walker), Longview	1,300.00	1,084.00
Falcon Co., Fort Worth	46,131.10	36,248.82
Falls Production Co., Wichita Falls	6,590.84	5,088.29
Ferguson & Watson, Electra (9-30-31)	246.50	86.36
Ferguson & Watson, Electra	543.40	364.70
Ferguson & Watson, Electra	893.70	713.40
Fairway Production Co., Laredo	11,182.42	7,910.39
Four Oil Co., Wichita Falls	875.68	618.11
Fox & Butler, Dallas	38,278.70	29,269.93
Farley, George E., McCamey	17,033.13	4,759.86
Fleetborn Oil Corp. and Steinberger & Schwab, Ada, Okla.	27,101.04	20,536.95
Fox, Perry J., and William R. Thorsen, Mertzon	819.57	538.87
First National Bank of Wichita Falls, Tex., executor and trustee of the G. W. Mennis estate, Wichita Falls	2,333.10	1,697.69
Farmers State Bank, Burkburnett	765.24	550.75
G		
Ginter-Jones Oil Co., Nacogdoches	310.79	203.20
Ginter-Lange Oil Co., Inc., Nacogdoches	1,047.76	712.07
Gilliman Brothers, Amarillo	1,042.83	655.72
Grossroots Oil Co., Fort Worth	621.06	475.69
Granite Oil & Gas Co., Electra	258.12	203.63
Gladis Oil Co., Saratoga	2,453.45	1,331.07
Gulf Coast Oil Co., Houston	120,832.38	90,863.45
G. & R. Oil Co., San Antonio	13,282.00	10,054.15
Gaskill, M. E., Tulsa, Okla.	12,362.42	10,751.17
Gibson Oil Corp., Amarillo	38,973.33	26,292.12
Gordon, Ann B., Oil Co., Dallas	1,937.86	1,567.62
Glover, S. D., Vernon	860.39	637.70
Guthrie, Cole & Ferguson, Wichita Falls	505.28	372.67
Gaither Production Co., Rockdale	546.37	301.68
Gilcrease Oil Co., Tulsa, Okla.	50,228.03	64,644.39
Gordon Oil Co. of Texas, Logan	148.54	112.22
Glenridge Oil Corp., St. Louis, Mo.	2,568.44	1,875.96
Gwynn-Boyd Drilling Co., Wichita Falls	1,249.10	990.21
Gwynn, P. F., Wichita Falls	5,361.14	3,917.88
Gwynn, individually and as agent for J. F. Boyd, Tom Corridon and J. D. Overbey, Wichita Falls	985.43	746.10
Green & Owens, Brownwood	490.07	380.36
G. & K. Production Co., beginning Oct. 1, 1931, to Nov. 30, Fredericksburg	512.97	315.32
Golding & Cochran, Dallas	25,928.51	19,760.00
Gilman, R. F., and J. L. McMurray, Cisco	7,676.78	5,749.13
Gallagher & Lawson, Cisco	332.02	203.78
Gates Oil Co., Littleton, Colo.	3,167.16	1,924.09
Gaskill, S. A., Gilmer	3,224.00	2,675.92
Gardner, Wilson & McCaldin, Wichita Falls	688.27	481.78
Gholson, John M., Ranger	832.88	642.14
Grayburg Oil Co., San Antonio	128,288.90	69,597.16
Gold Star Oil Co., Ardmore, Okla.	7,311.10	5,954.31
Goldsmith, N. D., Olney	3,980.70	3,107.57
Gulf Refining Co., Houston	6,818,156.00	4,220,761.61
Gates Oil Co., Ardmore, Okla.	1,827.89	1,385.48
Glass Brothers, Rosebud	454.92	247.31
Gatlin Oil Co., San Antonio	5,153.55	3,476.06
Gorsuch Oil Co., Abilene	2,166.87	1,616.09
Group No. 1 Oil Corp., Fort Worth	962,786.67	679,171.36
Galves Oil Corp., Tulsa, Okla.	45,731.59	35,599.22
Golden West Oil Co., San Antonio	12,737.62	5,962.73
Grady, Mary E., Electra	1,175.23	934.34
Goodwin, P. B., et al, Breckenridge	274.00	189.02
Goodwin, P. B., trustee, Breckenridge	2,006.40	961.96
Grisham-Hunter Corp., Abilene	32,867.74	25,651.73
Glasscock Brothers, Longview	7,118.47	4,840.56
Gray & Adams, Inc., by Roy Potter, manager, Gainesville	180.00	117.00
Gibson-Johnson & Merrick, Fort Worth	8,936.02	6,624.55
Gilman & Conway Brothers, Ranger	3,619.11	2,896.82
Grayback Development Corp., Wichita Falls	4,782.36	3,409.54
Glasscock Brothers, Longview	11,756.47	8,931.81
G. I. Oil Co., Wichita Falls	5,242.55	4,360.77
Greene Production Co., G. R. Thomas, receiver, Fort Worth	31,424.05	18,754.09
H		
Humble Oil & Refining Co., Houston	9,117,692.40	6,419,019.73
Huey, Ora, Borger	3,658.69	2,158.69
Hutchinson Drilling Co., Borger	1,323.31	538.30
Halliday, H. J., Beaumont	1,784.34	1,009.03
Heyser & Heard, Dallas	36,110.54	27,606.06
Herring, S. C., Brownwood	398.00	319.64
Henderson & Holden, Wichita, Kans.	12,760.60	9,781.91
Hughes, J. K., Oil Co., Mexia	10,528.94	7,557.72
Hobbs, Ferguson & Neeley, LeRoy Adams and Addison H. Gibson, Tulsa, Okla.	3,251.27	1,991.94
Hitchman & Howard, Inc., San Antonio	1,447.15	970.63
Hickory Oil & Gas Corp., Fort Worth	3,676.74	2,774.44
Hemby, J. M., Electra	643.65	511.25
Harper Petroleum Corp., Bryson	14,050.78	11,146.04
Hamill Smith Oil Corp., Houston	43,704.94	32,793.77
Humphreys Brothers, Inc., et al, Denver, Colo.	484.98	377.20
Hull, L. V., Wichita Falls	4,408.29	3,521.34
Healy, J. R., Casper, Wyo.	2,746.11	1,875.49
Hickok Producing & Dev. Co., Toledo, Ohio	200.72	105.90
Haskell, Frank, care V. W. Henry, Tulsa, Okla.	882.41	625.21
Hunter, J. F., Wichita Falls	14,840.15	10,866.42
Holder, F. W., and J. B. Gordon, Breckenridge	118.31	75.28
Huber, J. M., Petroleum Co., Borger	20,055.10	9,891.17
Holbrook & Woods, Wichita Falls	3,674.54	2,818.14
Heydrick, L. C., Wichita Falls	3,795.25	6,066.74
Hart, W. S., Vivian, La.	853.12	691.77
Hart, W. S., Vivian, La. (9-30-31)	154.07	107.85
Houston Oil Co. of Texas et al, Houston	725,692.81	471,019.08
Houston Production Co., Houston	63,138.84	45,761.71
Hamon, Jake T., Ardmore, Okla.	16,429.59	12,685.65
Howard County Oil Corp., Big Spring	8,732.52	3,999.57
Hindman, G. W., San Antonio	12,574.96	9,614.36
Hill & Dowell, Batson	6,262.16	4,018.79
H. B. J. Oil & Gas Trust, Baltimore, Md.	1,331.61	1,005.05
Harrell, J. T., Wichita Falls	347.66	279.13
Hobson & Voorhees, San Antonio	420.00	286.02

(Continued on Next Page)

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1931

Name—	Barrels	Value
Henry Oil Corp., Luling	8,936.88	7,089.30
H-Y Oil Co., Inc., Fort Worth	18,387.47	13,990.62
Holmes, Hill, Seibold & Holmes-Moore lease, Amarillo	14,361.17	9,428.00
Holmes Brothers-Quinn, Amarillo	16,786.43	10,937.14
Holmes Brothers-Moore lease, Amarillo	3,441.45	2,260.54
Holmes-Newblock lease, Amarillo	4,867.92	3,078.55
Hooper, W. T., Burkburnett	482.18	373.86
Hooper, W. T., Burkburnett	29.47	23.87
Hanbury, Harry, Pasadena, Calif.	12,406.00	10,296.98
Hanbury, Harry, Pasadena, Calif.	3,320.00	2,756.25
Harris & Simons, Tulsa, Okla.	3,173.84	1,936.64
Fred Hyer, Fort Worth, Tex.	18,363.73	8,230.64
Hunt, H. L., trustee, Tyler	695,133.88	536,943.50
Hobbs Oil Co., Tulsa, Okla.	1,312.88	1,018.19
Hamilton & Martin, Wichita Falls	241.02	168.47
Hyde & James, Albany	297.59	198.06
Hanson, G. D., and R. U. Tidwell, Graham	4,171.11	3,415.41
Herbert Oil Co. of Texas, Fort Worth	4,978.69	3,666.99
Hastings, Allen & Craft et al, Overton	11,425.00	6,614.36
Hardie, J. M., & Co., Sour Lake	246.57	172.60
Hankmer & Lee, Tyler	6,178.26	5,127.95
Hammon & Heyser, Wichita Falls	7,617.64	5,653.05
Hammon, W. H., Wichita Falls	24,701.07	19,519.08
Harwell, E. P., Tulsa, Okla.	1,365.32	898.02
Horn, T. W., Houston	321.68	225.17
Hoffman & Page Co., The, Eastland	15,865.16	11,573.32
Herrogan Oil Corp., Pampa	7,768.01	2,888.28
Heep Oil Corp., Houston	112,974.22	86,886.79
Hayes, Reese L., Olney	1,116.70	767.03
Hamilton, Walter R., trustee, San Antonio	3,104.99	2,216.56
Hammon & Waggoner, Wichita Falls	544.33	428.96
Hawkeye Petroleum Corp., Longview	61,413.42	48,432.80
Holcombe, Thos., Wichita Falls	1,082.85	848.30
Howard, Duffield & Berlin, Tulsa, Okla.	862.02	578.50
Heidrich, E. C., Jr., Amarillo	3,012.63	1,600.87
Haya, F. C., trustee, Tulsa, Okla.	1,270.22	964.92
H. & H. Drilling Co. and J. L. Douglas, Moran	768.50	525.37
H. & H. Drilling Co., Gladewater	205.00	144.04
Hopkins, Edwin B., Longview	12,568.24	9,627.80
Haynes Drilling Co., Shreveport, La.	116,921.51	90,199.91
Hamilton, W. L., Bridgetown	994.25	783.38
Hugo Freels, Pecos	300.94	150.47
Helvetia Oil Co., San Antonio	8,877.79	5,507.20
Hickey, T. T., et al, Corsicana	59.36	42.50
Hart & Gist Production Co., Inc., Colorado	1,611.21	1,109.51
Hawley, J. A., guardian of the estate of Kirvin Hawley, Ottawa Canada	135.72	97.15
Hedrick-Camp Drilling Co., Wichita Falls	1,991.11	1,354.26
Hoffman, P. L., Cisco	35,789.87	20,847.88
Hope Oil & Gas Co., Fort Worth	7,390.63	7,350.17
Houston Gulf Gas Co., Houston	4,407.60	2,873.22
Hardy Oil Co., Wichita Falls	1,159.29	903.16
Howard Petroleum Corp., Tulsa, Okla.	31,069.05	24,034.96
Hanlon Gasoline Co., Tulsa, Okla.	1,473.07	1,035.35
Hamill & Hamill, Bay City	107,612.38	67,696.59
Ham Oil Co., Chicago, Ill.	6,921.40	3,148.85
Huffman Oil Corp., Amarillo (6-30)	1,124.44	461.02
Huffman Oil Corp., Amarillo	1,966.64	1,564.06
Huffman Oil Corp., Amarillo (9-30)	2,027.54	831.29
Hynes, F. P., et al, San Antonio	20,752.00	12,334.78
Home Oil & Gas Co., Inc., Albany	712.74	510.25
Hammon & Waggoner, Fort Worth	476.29	375.34
Hoyner, J. M., trustee, Tyler	13,712.61	10,309.82
Hunter Oil Corp., Chicago, Ill.	26,488.26	18,984.74
Harrison Oil Co., Houston	34,252.17	25,706.36
Hawkins, W. L., Wichita Falls	2,191.55	1,623.07
I		
Investors Oil & Gas Co., Sioux Falls, S. D.	1,037.15	718.20
Intercoastal Oil Co., Houston	36,994.85	26,291.49
Iowa-Payne Oil Co., Marshall	44,271.35	34,108.61
Irish Oil Co., Tyler	3,917.00	1,958.50
Invincible Oil Co., Los Angeles, Calif.	37,286.47	29,657.61
Indian Territory Illuminating Oil Co., Bartlesville, Okla.	50,715.61	30,080.14
Ilfield, Arthur C., Las Vegas, N. M.	5,422.32	4,295.18
Island Oil Co., Longview	14,339.72	11,397.41
Imperial Petroleum Co. (successor Godley Oil & Gas Co.), Dallas	10,469.21	5,658.56
J		
Johnston & Johnston, Tyler	4,320.00	3,289.27
James, Klinger & Rowland, Albany	173.00	127.52
James & Klinger, Albany	425.00	307.24
James, Tom, Albany	3,654.69	2,849.51
Johnson, F. T., Wichita Falls	354.09	276.96
Jacob Oil & Gas Co., Graham	2,458.67	1,606.81
Jones, Hugh, Burkburnett	2,057.00	1,479.52
Jones, E. W., and F. D. Drilling Co., Dallas	20,983.15	16,482.76
Jonray Oil Co., Somerset	593.88	380.68
Jones, W. R., et al, Wichita, Kans.	30,618.28	23,963.73
Jones, C. P., and C. J. Oates, Amarillo	989.00	247.25
Jackson, Wise & Snedden, Inc., Sapulpa, Okla.	37,258.63	28,598.06
Judson Oil Co., Tulsa, Okla.	4,386.71	3,386.88
Jamison, Pollard & Forster, Coleman	2,552.25	2,043.29
Jackson, J. S., trustee, Sour Lake	3,025.31	1,921.42
Julita Oil Co., Sour Lake	2,906.48	1,892.62
Jones, J. E., Wichita Falls	1,602.31	1,262.03
Julian, C. C., Oil & Royalties Co., John W. Harrell, receiver, Oklahoma City, Okla.	12,998.86	9,957.03
Julian, C. C., Oil & Royalties Co., John W. Harrell, receiver, Oklahoma City, Okla.	4,165.52	3,226.77
Julian, C. C., Oil & Royalties Co., John W. Harrell, receiver, Oklahoma City, Okla.	8,532.44	6,805.13
Jones-O'Brien, Inc., Shreveport, La.	30,587.35	24,034.80
Jones, Edwin M., San Antonio	145,374.52	112,233.68
Julian Oil & Royalties Co., Oklahoma City, Okla. (6-30)	1,954.43	936.30
Julian, C. C., Oil & Royalties Co., Oklahoma City, Okla. (6-30).	5,070.16	2,216.00
Julian, C. C., Oil & Royalties Co., Oklahoma City, Okla. (6-31).	11,939.20	7,799.80
Julian, C. C., Oil & Royalties Co., Oklahoma City, Okla. (6-30).	7,760.00	3,062.18
Julian, C. C., Oil & Royalties Co., Oklahoma City, Okla.	10,088.26	7,919.86
Julian, C. C., Oil & Royalties Co., Oklahoma City, Okla.	11,380.43	5,469.01
Jones, R. C., Cushing, Okla.	4,476.46	3,303.91
Jacelien Oil Co., Tulsa, Okla.	60.02	42.14
Jones, J. A., Moran	245.22	178.98
Johnston, T. A., trustee, Dallas (9-30)	4,684.18	3,185.24
Justin Oil Corp. et al, Long Island, N. Y.	4,518.62	3,601.94
Johnston, T. A., trustee, Dallas	10,710.16	8,180.57
Jones, Doss, Oil Co., Oklahoma City, Okla.	20,902.38	16,386.74
Julian, C. C., Oil & Royalties Co. (C. G. Whitten Co., receiver), Abilene	7,000.00	4,550.00
K		
Kahle, Gracey, & Diver, Dallas	1,890.99	1,078.88
Kathleen Oil Co., McAlester, Okla.	25,354.34	20,088.12
Kendrick, P. S., Albany	1,432.00	1,057.59
Kent Refining Co., Corsicana	7,352.34	3,867.24
Kenwood Oil Co., McAlester, Okla.	25,787.03	19,820.71
King & Daniel, Wichita Falls	3,569.49	2,791.74
Kirby Petroleum Co., Houston	206,824.39	118,813.00
Karona Oil Co., Dallas	41,752.71	30,766.74
Kavanaugh Petroleum Co., Houston	2,701.00	1,963.23
Kepley Production Co., Laredo	14,721.53	10,477.03
Kimmell & Woofter, Wichita Falls	5,017.98	3,831.87
Kiser & Fleming, Albany	2,053.01	1,523.54
Kate Bell Oil Co., Dallas	508.92	372.91
Katter, J. S., and Bobby Manziel, Gladewater	9,505.00	7,483.83
Kisk Oil Co., Wichita Falls	1,201.44	821.02
Kohlman, Richard, Iowa Park	340.00	272.00
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	2,415.42	1,796.65
King & Massengill, Longview	12,546.55	9,570.58
Killam, O. W., Laredo	171,734.73	115,620.87
Kaufman, L., San Antonio	204.72	131.84
King, R. A., trustee, Wichita Falls	1,260.06	882.17
Kimmell, Mrs. W. O., Wichita Falls	2,917.41	2,245.05
Kelley, George L., Wichita Falls	266.86	198.54
Kolp, C. F., Tyler	17,110.41	12,903.60
King, A. D., trustee, Shreveport, La.	38,030.46	28,901.90
Ketch, Frank L., and Stanley Lewis, trustee for L. B. Ketch, Oklahoma City, Okla.	12,552.95	9,618.45
Kerr, E. E., Houston	4,447.16	3,691.14
Kemrow Co. and Bailey, Wooster, Ohio	12,299.79	8,969.35
Kolp, C. F., et al, Tyler	25,236.37	19,249.57
Kolp, C. F., et al, Tyler	26,215.00	13,107.51
Kilgore Refining Co., Inc., Overton	1,169.59	970.76
Kay, A. W., and W. B. Fultz-J. Kisinger farm, Graham	12,070.15	9,685.67
Kistler, Frank & Co., Littleton, Colo.	640.34	273.59
Knox, D. M., Graham	33,445.74	26,139.44
Klemche, George, trustee, Von Ormy	1,073.26	634.83
Kidney & Lester, Fort Worth	12,454.00	9,458.65
Keystone Production Co. of Texas, Fort Worth	2,340.45	1,827.64
Kewanee Oil & Gas Co., Titusville, Pa.	157,187.34	113,167.01
Keller, J. E., Iowa Park (9-30-31)	157.98	107.41
Keller, J. E., Iowa Park	74.16	61.56
Kurz Oil Co., Somerset	333.46	195.58
Kent, G. G., Corsicana	11,684.70	7,669.75
Kerr, T. P., Corsicana	488.28	360.23
Ketch, Frank L., and Stanley Lewis, trustee for L. B. Ketch, Oklahoma City, Okla. (9-3-31)	8,071.12	3,384.94
King, A. D., trustee, Shreveport, La.	16,626.80	5,615.05
Kidney-Kamon et al Fort Worth (9-30-31)	2,177.33	1,132.84
Kuhlemeier-Kleiner Oil Co., Cisco	430.31	327.90
Kleiner, John H., Cisco	642.74	521.70
Kimbell, G. T., and John L. Bostio, Burkburnett	8,314.74	5,737.17
Kleiner, Charles J., Cisco	40,830.41	30,903.46
Kinnebrew & Simpson, Shreveport, La.	12,628.82	9,677.09
Kohlman, Richard, Iowa Park (9-30-31)	345.00	240.48
Kinnebrew & Simpson, Shreveport, La.	5,274.14	3,586.48
King Royalty Co., Wichita Falls	185,329.95	145,896.49
Kingwood Oil Co., Okmulgee, Okla.	23,391.94	18,419.87
K. & P. Oil Co., Tyler	40,620.52	31,207.96
Kenwood Oil Co., McAlester, Okla.	1,735.22	1,256.65
Knotts, Nona A., Wichita Falls	518.12	406.89
Knotts, Nona A., Wichita Falls	614.72	340.75
Kent Refining Co., Corsicana	3,631.79	2,683.35
Kent Refining Co., Corsicana (6-30)	7,429.70	4,098.00
Kent Refining Co., Corsicana (9-30)	7,389.39	3,077.35
Kleinfelder, S. F., Breckenridge	214.40	163.02
L		
Lewis Production Co., Pittsburgh, Pa.	90,310.65	67,933.95
Lake View Oil Co., Sour Lake	9,075.09	5,895.85
Landreth Production Co., Fort Worth	110,491.95	49,356.10
Lee, Homer, Wichita Falls	10,652.23	8,233.12
Little Caesar Oil Co., Longview	3,559.02	2,953.99
Langford Oil Co., Wichita Falls	894.24	391.60
Lively & Bryan et al, operated by J. G. Hamill, receiver, Fort Worth (6-30)	19,056.48	7,732.81
Laird, S. S., receiver for Cash & Coleman, Kilgore	12,471.17	9,524.25
Lockhart, H. L., Gladewater	11,870.00	8,929.99
Lineodo Oil Co., Lincoln, Neb.	583.28	409.97
Lampton, H. W., Muskogee, Okla.	13,337.30	10,296.77
Lucey Petroleum Co., Dallas	93,224.75	73,571.84
LaSalle Petroleum Co., W. J. Schnur and Phil D. Williams, receivers, Tulsa, Okla.	2,853.92	2,045.78
Lowe, DeLaney & Carter, DeLeon	1,306.36	925.49
Leck Royalty & Oil Co., Fort Worth	1,104.52	850.69
Lee & Phillips, Gladewater	2,883.00	2,392.89
Lesh, Kilcrease & Co., Nocona	1,830.93	1,026.07
Lesh & McCall, Nocona	47,018.45	32,684.16
Lesh, John I. & Co., Nocona	5,507.19	3,054.49
Louisiana Oil & Refining Corp., Shreveport, La.	70,966.47	37,497.25
Lewis, J. E., et al, Eastland	647.73	482.76
Lee & Scott, Inc., Houston	1,853.92	1,210.58
Lee, T. F., and E. M. Wilson, Houston	3,578.44	2,467.70
Leonard, George, Somerset	820.48	524.21
Lone Star Oil Co., Ardmore, Okla.	12,423.23	9,574.23
Larcro Gas & Petroleum Co., San Antonio	41,482.94	28,584.11
Lawson, Eugene B., estate, Tulsa, Okla.	26,952.38	20,002.20
Long, L. A., et al, Graham	51,943.12	40,762.57
Letwin & Lippitt, Breckenridge	20,791.00	15,930.39
Lowenstein Oil Co., Rockdale	534.87	298.78
Lion Oil Refining Co., ElDorado, Ark.	473,025.39	262,454.16
Lewis, J. E., & Co., Eastland	978.63	735.92
Langford Oil Co., Wichita Falls	878.81	677.11
Lester & Duffield, Fort Worth	12,289.00	9,436.22
Lacy Petroleum Co., Longview	12,484.35	9,206.02
Lido Oil Co. and McGinley Corp., Fort Worth	14,466.50	10,597.73
Lockhart & Co., Los Angeles, Calif.	73,010.22	32,513.76
Len-Cook Oil Co., Electra (9-30)	264.07	170.05
Len-Cook Oil Co., Electra	208.77	169.90
Lytle, C. F., Mexia	7,943.84	5,603.35
Long, C. B., et al, Wichita Falls	331.81	247.39
Lackey, W. G., Co., Tulsa, Okla.	1,571.63	1,080.45
Loggie Arendt Oil Co., Albany	1,416.45	968.28
Louisiana Texas Oil Corp., Longview (6-30)	19,416.14	7,744.04
Louisiana Texas Oil Corp., Longview (9-30)	13,568.86	4,849.47
Lone Pine Oil Co., Tyler	11,554.59	6,528.88
Larsro Gas & Petroleum Co., San Antonio (9-30)	55,881.02	28,239.59
Lone Star Gasoline Co., Dallas	8,337.68	6,055.53
Lone Star Gas Co., Dallas	22,346.11	17,670.77
Long, Roy, Oil Co., Navasota	1,200.39	557.22
Lide-Rowe Oil Co., Inc., Shreveport, La.	25,832.92	19,784.19
Lafors Petroleum Co., Lafors	19,303.74	11,209.35
Lide-Taylor Oil Co., Shreveport, La.	52,338.94	30,024.12
Little, William, Breckenridge	152.71	107.92
Lively & Bryan et al (J. G. Hamill, receiver), Fort worth	13,023.67	9,980.90
Mc		
McNamara Oil Co., Beaumont	1,482.03	961.61
McMurray, Root & Rhodes, Eastland	455.00	366.00
McGrary, E. W., Tulsa, Okla.	3,738.76	2,706.49
McGinley Corp., Fort Worth	3,616.63	2,649.47
McDonald & Campbell, Dallas	5,780.16	4,240.15
McCutchin, Alex, Arp	12,534.00	9,463.17
McMahon, Charles L., Tulsa, Okla.	48,947.31	37,667.40
McLester Oil Co., Eastland	5,703.85	4,429.59
Magee, R. B., Wichita Falls	1,395.78	1,086.48
McMurrey & Fair, Tyler	12,998.23	9,957.32
McCutchen, C. E., trustee, Wichita Falls	5,110.41	4,016.40
McCulloch Oil Co. of Texas, Tyler	3,572.61	2,807.52
McCulloch Oil Co. of Texas, Tyler	2,711.14	2,075.61
McClintock, J. G., Amarillo	4,868.43	2,668.69
Mackham & Dunning, Fort Worth	50,892.98	39,060.44
May, W. J., (trustee) Citizens Oil Co., Gladewater	12,578.00	9,510.98
McDaniel and Plummer, Houston	13,157.97	8,947.42
McJunkin, Florence T., et al, Tulsa, Okla.	335.81	251.37
McDaniel Oil Corp., Cisco	3,425.23	2,761.83
McCanley, Mrs. Cloud, (W. J. Mayers, mgr.), Somerset	848.37	495.92
McMurray, J. L., et al, Cisco	1,861.62	1,490.27
McIlroy Oil Co., Amarillo	21,374.82	12,604.64
McCurdy, W. L., and Dan Easter, McCamey	8,477.28	3,917.52
MacDermott, W. F., Fort Worth	390.33	292.25
McIntosh, Hefley, Cameron	481.66	242.77

(Continued on Next Page)

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1931

Name—	Barrels	Value
MacKnold Co., San Antonio	140.20	85.53
McDonald Brothers, Mount Pleasant	12,066.45	9,285.10
McCarter, R. C., Rising Star	828.59	579.52
McCamey, George B. (previously reported as W. A. Tunstill) Fort Worth	12,615.83	9,686.65
McCurdy, E. J., Jr., Fort Worth	8,186.00	3,669.36
McAlbert Oil Co., Inc., Houston	42,102.59	27,365.28
McDaniel, D. B., Houston	101,658.42	64,709.07
McClanahan, D. E., Vernon (6-30)	746.11	359.69
McClanahan, D. E., Vernon	249.50	185.88
McCarty Oil Co., Wichita Falls	44,598.12	27 370.51
Lone Pine Oil Co., Tyler (9-30)	7,367.07	3,697.86
McMurrey & Fair, Tyler (10-31)	7,240.00	4,043.78
McNallen & Griffin, Tulsa, Okla.	5,288.55	3,877.05
McKanna, Inc., Wichita Falls	7,438.58	6,030.88
McCarty, W. W., and Edw. T. Martin, Wichita Falls	3,533.65	2,756.22
M		
Moran, J. J., et al, Wichita Falls	4,524.87	3,540.51
Moore, N. A., Eastland	377.46	274.64
Mount & Lee, Inc., Wichita Falls	993.40	742.50
Magguritte Oil Co., Cross Plains	453.52	231.29
Mabree, J. E., Co., Tulsa, Okla.	79,819.13	60,288.97
Mabree, J. E., Oklahoma City, Okla.	12,407.39	9,498.17
Martin & Sladek, Earnest S. Goens, receiver, Tyler	14,831.67	8,062.51
Martin, F. W., & Co., Tulsa, Okla.	943.38	783.01
Maxwell, J. C., Fort Worth	28,343.20	12,677.12
Medina Oil & Gas Association, San Antonio	58.01	38.87
Murphy, O. G., trustee, El Dorado, Ark.	15,022.22	12,223.57
Mark Finston, special account, Tulsa, Okla.	9,163.13	6,390.58
Mann, George, Batson	117.42	82.19
Mann, Fred, Graham	1,112.72	852.03
Mann & Forbes, Graham	2,206.07	1,745.60
Moore, George N., and Henry Zweifel, receivers for Cosden Oil Co., Fort Worth	171,961.71	90,196.51
Millikin, L. L., Burkburnett	308.07	227.14
Mills Bennett Production Co., Houston	563,041.25	391,996.59
Midland Oil Co., Fort Worth	232.41	161.67
Merrick & Lamb, Ardmore, Okla.	27,300.74	11,356.29
Merrick & Bristow, Ardmore, Okla.	28,743.02	11,433.35
Meredith, J. D., Moran	2,231.13	1,423.64
Mecom Oil Co., Liberty	2,154.50	1,399.30
Magnolia Petroleum Co., Dallas	3,905,495.06	2,677,261.63
Mayberry, C. R., Co., Laredo	1,688.97	1,173.61
Murchison Oil Co., Dallas	27,428.66	14,639.53
Marnet Oil & Gas Co., Tulsa, Okla.	3,579.34	2,665.75
Mozzie Oil Corp., Eastland	611.42	359.67
Mid-Kansas Oil & Gas Co., Findlay, Ohio	3,200,712.10	1,550,190.41
Marts, E. B., Dallas	2,253.53	1,597.36
Mitchell, Frank A., Wichita Falls	1,309.50	961.95
Minntex Oil Corp., Wichita Falls	709.52	445.46
Murick & Goldsmith, Wichita Falls	3,258.68	2,608.11
Merrick & Belcher, Wichita Falls	5,288.05	4,158.94
Maynard and/or E. S. Taxman, Wichita Falls	8,141.67	6,378.94
Margay Oil Corp., Tulsa, Okla.	99,491.59	77,172.45
Moss, Urschel & Keys, Dallas	3,370.64	2,372.08
Moss & Urschel, Dallas	28,256.55	20,694.41
Moss, H. S., Dallas	14,430.47	11,136.76
Moss, H. S., special, Dallas	13,543.87	10,448.96
Morton, A. D., Tulsa, Okla.	1,000.00	830.00
Mid-Texas Petroleum Co., Oklahoma City, Okla.	14,043.79	10,629.12
Marlin Oil Synd. (M. O. Ewallow, receiver), Longview	12,481.95	9,644.19
Marine Corp., Dallas	52,605.20	39,312.18
Madden & Hunt, Olney	6,259.97	4,846.67
Madden, E. B., Olney	7,278.57	5,598.13
Morgan, Ray, et al, Fort Worth	804.45	624.75
Moran Co., Wichita Falls	7,419.77	5,516.37
Milham Corp. of Texas, Fort Worth	1,161.55	912.60
Meridian Petroleum Corp. of Texas, Tulsa, Okla.	40,265.16	30,804.71
Martin & Hamilton, Wichita Falls	3,567.30	2,550.04
Martin, N. H., Wichita Falls	7,907.69	5,485.70
Murphy, Q. C. (Murphy, Rodgers & Lanier), Marshall	5,033.31	4,177.66
Moutray Oil Co., Abilene	3,805.83	2,545.38
Mook Texas Oil Co., Fort Worth	34,504.52	26,634.85
Mendenhall Oil Co., Cisco	871.34	693.07
Massie, J. H., Wichita Falls	60,803.62	41,884.65
Merrick & Goldsmith, Wichita Falls	3,258.68	2,608.11
Merrick & Belcher, Wichita Falls	5,288.05	4,158.94
Maxwell, J. C., Fort Worth	28,343.20	12,677.12
Mues and McDermott, Fort Worth	302.14	238.69
Mordyan Petroleum Co., Pampa	17,486.30	11,542.53
Meredith, J. D., Moran (9-3-31)	2,237.54	977.67
Marguritte Oil Co. and B. Welch, Cross Plains	369.75	661.42
Messinger, C. S., et al, Royalty	6,816.51	1,533.71
Manson Oil Co., Chickasha, Okla.	30,069.05	24,411.35
Madison Oil & Gas Co., Electra	2,302.28	1,935.45
Meredith & Gant, Wichita Falls	1,633.70	945.90
Massey-Black, McCamey	1,615.98	585.59
Martin, H. W., San Bernardino, Calif.	18,090.37	4,085.76
Montgomery-Rea-Montgomery, Sedwick	1,011.13	768.75
Merren, K. E., Shreveport, La.	12,666.78	9,733.81
Merren, K. E., trustee, Shreveport, La.	12,740.71	9,792.19
Mullendore, Benny, & Berry, Cleveland, Okla.	47,510.14	30,630.04
Minor Oil Co., Beaumont	6,700.74	4,313.26
Mills & Garitty, Corsicana	2,133.18	1,066.59
Moody Corp. (Lewis Fisher and Thos. H. Ball, receivers), Houston	407,591.00	226,245.24
Mozzie Oil Corp., Eastland (3-31)	785.32	535.57
Mozzie Oil Corp., Eastland (6-30)	1,277.54	573.41
Marlin Oil Synd., M. O. Swallow, receiver, Longview (6-30)	2,792.41	558.48
Milton Bridges, Kilgore	12,963.86	9,991.08
Mudge Oil Co. of Texas, Pittsburgh, Pa.	75,471.15	58,273.07
Mid-Continent Petroleum Corp., Tulsa, Okla.	13,847.28	10,498.74
Mitchans, G. P., Cisco (9-30)	808.55	389.47
Mitchans, G. P., Cisco	4,050.54	3,084.47
N		
Novak & Lanning (Rowland lease), Rockdale	245.76	131.78
Novak & Lanning (Phillips & Perry lease), Rockdale	77.41	44.90
Neversuch Oil Co., Mexia	6,991.11	5,601.11
Nash-Windfohr & Perry, Austin	35,740.81	20,398.05
National Oil Co., San Antonio	579.08	334.43
Nash & Windfohr Oil Corp., Graham	41,696.44	33,194.29
North Fork Oil Co., Amarillo	2,750.74	1,797.89
North Fork Oil Co., Amarillo (9-30)	1,198.47	485.47
North Fork Oil Co., Amarillo (6-30)	942.09	327.06
Number Nine Oil Corp., Tulsa, Okla.	1,924.02	1,501.02
Nutt & Gates, Wichita Falls	3,387.33	2,140.18
Newton & Lillie, Goose Creek	15,805.62	10,305.97
Newton-Palmer Oil Co., Rockdale	300.50	167.97
Navarro Oil Co., Houston	224,318.93	166,997.25
Nabob Oil & Gas Co., Amarillo (9-30)	14,827.94	4,585.76
Nabob Oil & Gas Co., Amarillo (6-30)	14,068.76	6,404.54
Noack Oil Co., Rockdale	1,013.37	539.28
Newport & Ohio Petroleum Co., Newport, N. Y.	466.52	360.53
Novak-Lanning (Shelton lease), Rockdale	151.36	73.04
O		
Owenwood Pool No. 3, J. W. Robins, trustee, Fort Worth	38,529.23	29,598.30
Oliphant, A. G., Tulsa, Okla.	72,777.58	55,167.05
Oldom, William P., Iowa Park	488.49	371.90
Olvey, J. W., and Clark Sample, ElDorado, Ark.	77,861.72	59,514.88
Oasis Oil Co., Wichita Falls	62.00	48.98
O'Neil, John, Wichita Falls	10,785.19	8,279.79
Overton Refining Co., Inc., Overton	17,049.98	13,417.03
Oriental Oil Co., Dallas	11,796.95	8,829.32
O'Byrne, J. W., Tyler	10,613.81	8,212.13
Owen-Sloan Oil Co., Tulsa, Okla.	48,387.11	21,335.37
Oils, Inc., Oklahoma City, Okla.	17,818.52	13,966.83
Octagon Oil Co., Tulsa, Okla.	12,695.40	9,751.01
Octagon Oil Co., Tulsa, Okla.	4,900.20	3,349.20
Oaco, Laredo	1,441.15	868.26
O'Neil & Wallace, Tyler	5,458.58	4,530.61
Orange Petroleum Corp., Orangefield	30,165.49	19,576.66
Oil Investment Co., Wichita Falls	1,753.64	1,313.74
O'Hern, John J., Tyler	38,664.90	29,680.91
Olean Petroleum Co., Bristow, Okla.	13,750.19	8,030.88
O'Brien, W., Amarillo (6-30)	233.18	56.33
O'Brien, W., Amarillo (9-30)	369.59	125.76
P		
Philmack Oil Co., Tyler	13,955.61	10,732.41
Proctor, George, Wichita Falls	12,475.83	9,651.11
Pelican Natural Gas Co., Inc., Shreveport, La.	25,156.00	19,726.03
Plymouth Oil Co., Pittsburgh, Pa.	65,033.41	29,413.84
Pennowa Oil & Gas Co., Skiatook, Okla.	7,463.12	4,701.96
Pemeta Oil Co., Fort Worth	3,099.68	2,390.18
Pioneer Oil Co., Waco, Tex.	17,399.56	13,618.12
Perren & Fell, Dallas	17,693.42	13,943.78
Petroleum Marketing Corp., Houston	94,124.65	71,957.72
Poole, B. O., Batson	1,869.25	1,209.37
Powell & Irion, Inc., Gladewater	1,994.37	1,655.33
Pace & Ward, Breckenridge	598.50	450.65
Phillips Petroleum Co., Bartlesville, Okla.	29,167.02	23,110.24
Phillips Petroleum Co., Bartlesville, Okla.	158,287.37	114,018.17
Phillips Petroleum Co., Bartlesville, Okla.	85,480.25	37,413.84
Phillips Petroleum Co., Bartlesville, Okla.	26,041.76	11,551.81
Phillips Petroleum Co., Bartlesville, Okla.	21,412.49	9,504.96
Phillips Petroleum Co., Bartlesville, Okla.	6,951.15	3,061.26
Phillips Petroleum Co., Bartlesville, Okla.	79,350.84	34,337.38
Phillips Petroleum Co., Bartlesville, Okla.	37,957.17	29,028.16
Phillips Petroleum Co., Bartlesville, Okla.	895.56	718.57
Phillips Petroleum Co., Bartlesville, Okla.	21,275.39	16,760.08
Phillips Petroleum Co., Bartlesville, Okla.	1,009.18	810.14
Phillips Petroleum Co., Bartlesville, Okla.	4,758.72	3,671.08
Phillips Petroleum Co., Bartlesville, Okla.	19,680.73	14,959.40
Phillips Petroleum Co., Bartlesville, Okla.	4,484.71	3,478.21
Phillips Petroleum Co., Bartlesville, Okla.	5,099.01	4,078.70
Phillips Petroleum Co., Bartlesville, Okla.	9,013.83	7,192.56
Phillips Petroleum Co., Bartlesville, Okla.	2,010.10	1,077.75
Phillips Petroleum Co., Bartlesville, Okla.	232,695.45	148,474.40
Phillips Petroleum Co., Bartlesville, Okla.	1,385.04	1,019.12
Phillips Petroleum Co., Bartlesville, Okla.	395,433.11	221,998.72
Pugh-Hickman Drilling Co., Inc., Shreveport, La.	16,718.71	13,876.54
Petroleum Production Co., Wichita Falls	75,840.20	59,034.71
Peckham, F. W., Stanford	197.50	145.15
Peckham, F. W., Stamford (9-30)	347.00	163.41
Producers Drilling Co., Wichita Falls	1,309.20	988.09
Petroleum Producers et al, Wichita Falls	7,296.37	5,695.07
Pelkenton, F. L., Burkburnett	388.50	259.56
Paggi Brothers Oil Co., Beaumont	6,988.48	4,537.92
Paggi, Charles, & Co., Beaumont	397.34	256.08
Perkins & Cullum, Wichita Falls	80,229.24	64,846.26
Py-Tex Oil Co., Winchester, Ky.	463.97	288.00
Price-Russell & Co., Ranger	2,380.00	1,888.25
Prairie Oil & Gas Co., Independence, Kans.	764,595.70	543,661.08
Perry, Thomas H., Wichita Falls	18,132.90	14,042.17
Producers & Refiners Corp., Independence, Kans.	3,415.78	2,940.52
Producers Oil Co., Tulsa, Okla.	20,084.16	13,459.87
Perry, C. Edmund, Shreveport, La.	17,295.00	13,583.81
Pratt, Thomas H., Brenham	174.24	166.54
Piner, Robert T., Big Spring	716.80	556.39
Panhandle Refining Co., Wichita Falls	94,720.06	72,213.49
Prince Brothers Drilling Co., Electra	17,413.13	13,085.76
Pitzer & West, Breckenridge	22,640.41	17,730.62
Philp Brothers, Beaumont	2,161.35	1,704.11
Penn Oil Co., Dallas	9,698.52	5,020.92
Producers Supply & Tool Co., Marietta, Ohio	21,038.36	16,425.73
Porterfield, R. B., Overton	3,537.00	2,664.60
Poor Boy Oil Co., Rockdale	233.33	117.30
Paraffine Oil Co., Houston	11,477.69	7,390.56
Putnam Oil Co., Tulsa, Okla.	15,780.44	11,717.80
Pure Oil Co., Chicago, Ill.	829,186.24	555,251.12
Pure Oil Co., Chicago, Ill.	2,570,618.03	2,402,741.77
Primrose Refining Co., Wichita Falls	2,731.16	2,189.94
Prechel, Walter, Wichita Falls	314.64	159.17
Powell, H. J., trustee, San Antonio	2,054.38	911.97
Petroleum Investment Co., Wichita Falls (9-30)	2,620.90	1,424.76
Petroleum Investment Co., Wichita Falls (6-30)	3,138.70	1,647.16
Petroleum Finance Corp. of Texas, Longview	56,554.64	44,660.24
Perkins & Snider lease, Wichita Falls	3,911.79	3,082.65
Palmer & Burch, Inc., Wichita Falls	5,481.01	4,201.57
Pratt, D. C., Mineral Wells	2,207.04	1,661.66
Pratt, D. C., Mineral Wells (January, 1930, to September30, 1931, inclusive)	9,199.39	8,880.06
Pollard, W. E. and C. E., Pampa	3,757.36	2,513.60
Pioneer Oil, Gas & Refining Co., Somerset	781.81	518.81
Piper, L. E., trustee, Vernon	1,589.36	1,261.42
Panhandle & Santa Fe Railway Co., Wichita, Kans.	4,158.43	1,871.29
Pivoto, M. E., Sour Lake	5,725.70	3,697.97
Pettit Oil Corp., Trees, La.	411.00	329.52
Pope, Ernest, Saratoga	466.38	326.27
Powers Production Co., Houston	21,720.35	14,388.94
Py-Tex Oil Co., Winchester, Ky.	902.97	409.93
Pansota Oil Co., Amarillo	3,783.93	4,368.93
Pansota Oil Co., Amarillo (3-31)	1,890.00	1,147.27
Pansota Oil Co., Amarillo (6-30)	3,217.57	1,154.88
Pansota Oil Co., Amarillo (9-30)	3,025.34	1,240.80
Plains Drilling Co., Amarillo (9-30)	4,635.94	2,571.23
Pois, M., trustee, Wichita Falls	26.38	17.41
Pinley Oil & Gas Co., New York, N. Y.	2,418.21	1,300.71
Pois, Fine & Schulz, Wichita Falls	558.21	435.74
Pois, M., et al, Wichita Falls	3,434.54	2,744.25
Powell, J. L., estates, Wichita Falls	321.75	249.02
Palmer, Freddie, Oil Co., Rockdale	69.30	27.03
Q		
Quincy Oil Co., Vernon	141.73	110.42
Quincy Oil Co., Vernon (9-30)	134.56	78.11
Quincy Oil Co., Vernon (6-30)	131.42	65.55
Quinn, J. W., Eastland	1,011.80	556.92
Quinan, H. W., Medford, Ore.	499.50	306.01
R		
Reiter-Foster Oil Corp., Tulsa, Okla.	6,866.15	5,284.25
Reinhart, R. J., trustee, Oklahoma City, Okla.	358.40	278.69
Richmond Drilling Co., Texon	3,264.91	1,571.09
Rowe, J. T., Wichita Falls	2,407.36	1,920.11
Retsal Drilling Co., Inc., Henderson	13,408.27	10,594.56
Robinson, J. B., Sour Lake	225.92	124.26
Rountree & Kemp, Rockdale	390.65	205.89
Retsal Drilling Co., Inc., Henderson	17,982.73	5,456.47
Regan, J. T., Rising Star	1,071.90	820.89
Rockdale Junior Oil Co., Rockdale	163.07	78.95
Regan, J. T., Rising Star (6-30)	734.85	527.01
Ramsel Oil Co., Rockdale	1,133.91	615.99
Reclamation Co., Fort Worth	2,556.05	1,859.64
Robert Oil Corp., Breckenridge	44,966.56	34,733.32
Roeser & Pendleton, Inc., Fort Worth	323,966.75	248,564.81
Rex-Tex Oil Co., Winchester, Ky. (9-30)	902.97	409.93
Regga, E. R., Graham	19,226.95	15,192.37

(Continued on Next Page)

TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1931

Name—	Barrels	Value
Rio Bravo Oil Co., Houston	265,272.96	255,535.39
Rycade Oil Corp., Houston	4,896.77	3,542.26
Rose Tex Oil Co., Rosenberg (6-30)	170.00	136.00
Rose Tex Oil Co., Rosenberg (9-30)	1,752.25	821.23
Russell, Frank, Oklahoma City, Okla. (9-30)	5,736.00	3,375.22
Rixford, S. J., et al, Grandfalls (9-30)	1,972.00	491.55
Rowan & Nichols Oil Co., Fort Worth	21,417.33	16,950.40
Ruthada Oil Co. for H. L. Sturm, Ardmore, Okla.	1,131.59	799.31
Rock Creek Oil Corp., Amarillo	2,422.00	1,477.18
Rose Tex Oil Co., Rosenberg	812.82	572.19
Ross, Dwight M., Wichita Falls	1,125.00	911.62
Rex Petroleum Corp., R. A. Moore, receiver, Orange	6,321.24	3,986.78
Randado Oil Corp., Oklahoma City, Okla.	10,828.63	7,561.27
Rancho Oil Co., Fort Worth	33,417.66	25,639.96
Ranell Oil Co., Oklahoma City, Okla.	2,730.65	1,903.77
Reed, W. M., Breckenridge	756.00	593.21
Ruyle Farm & Oil Co., Wichita Falls	5,572.74	4,327.31
Republic Supply Co., Houston	14,765.15	10,037.47
Roth & Faurot Oil & Gas Co., Independence, Kans.	2,977.99	2,229.08
Roberts, H. W., Wichita Falls (9-30)	1,495.12	808.68
Russell, Frank, Oklahoma City, Okla.	11,312.28	9,120.75
Read, H., Dallas	12,662.00	9,682.66
Reserve Petroleum Co. of Texas, Tulsa, Okla.	25,605.45	19,606.11
Ramming, W. E., Wichita Falls	84.94	72.20
Russell & Wilson, Wichita Falls	5,826.90	4,256.92
Rhodes & Highers, Breckenridge	4,023.19	3,088.14
Rector & Davidson, Dallas	12,378.07	9,468.65
Reenes, Riley & Reenes, Gouldbusk	176.00	105.60
Rex-Tex Oil Co., Winchester, Ky.	463.97	288.00
Reno Oil Co., Sistersville, W. Va.	45,167.64	35,134.75
Robertson, R. R., Wichita Falls	3,704.20	2,689.48
Reed, Crenshaw & Glass, Nowata, Okla.	7,414.99	5,705.16
Root, G. M., Eastland	5,672.00	4,311.00
Root & Fehl, Eastland	1,101.00	782.00
Rowan & Bristow, San Antonio	9,085.82	7,541.24
Ruston Drilling Co., Inc., Ruston, La.	7,890.76	6,224.52
Rowe, W. H., Henderson	11,983.89	9,390.29
Rockwell, J. A., & Co., Warren, Pa.	1,685.05	1,270.91
Rubsam & Hunter, Wichita Falls	4,124.94	3,153.47
Rushing, Dr. J. S., Longview	51,904.62	39,817.06
Right of Way Oil Co., Muenster	576.40	414.20
Redick & Rugus Oil Co., Tyler	2,620.81	2,175.27
Randall, W. S., Oklahoma City, Okla. (9-30)	547.58	390.56
Randall, W. S., Oklahoma City, Okla.	564.74	383.99
Refugio Oil Corp., Houston	22,234.61	16,837.35
Ruthada Oil Co., Oklahoma City, Okla.	9,390.26	6,706.91
Ryan Consolidated Petroleum Corp., Tulsa, Okla.	53,244.34	35,787.97
Republic Production Co., Houston	584,935.07	395,323.25
R. M. V. Oil Co., Henderson	75,061.98	58,213.14
Rathke Oil Co., Wichita Falls	16,353.67	12,994.81
Robinson, M. L., Humble	866.68	564.32
Robinson, M. L., Humble (9-30)	919.16	458.66
Riner & Omahundro, Wichita Falls	8,665.10	6,757.10
Riner & Bailey, Wichita Falls	19,949.90	15,627.04
Riner, Roy L., Wichita Falls	5,422.32	4,256.15
Robinson, Arthur D., Dallas	5,181.21	3,301.86
Root, Rhodes, Gilman & McMurray, Eastland	3,763.00	3,008.00
Root & Rhodes, Eastland	14,466.00	11,028.00
Rockwood Oil Co., McAlester, Okla.	12,163.86	9,376.91
Robertson Drilling Co., Fort Worth	13,863.03	10,434.30
Rentex Oil Co., San Antonio	5,667.34	3,693.61
Red Star Oil Co., McAlester, Okla.	2,349.59	1,950.16
S		
Supreme Oil Co., Orange	1,530.53	1,004.97
Sun Oil Co., Dallas	1,837,499.90	1,287,377.63
Storey-Friebele-Duffey Oil Co. (Cowden lease), Winston-Salem, N. C.	18,863.00	8,445.53
Storey-Friebele-Duffey Oil Co., Winston-Salem, N. C.	33,405.00	14,318.22
Storey-Friebele-Duffey Oil Co., Winston-Salem, N. C.	3,533.00	1,583.24
Southern Petroleum Exploration, Inc., Sistersville, W. Va.	42,288.81	32,873.88
Snowden & McSweeney Co., New York, N. Y.	160,380.30	122,363.64
Sipe Springs Oil Co., Tulsa, Okla.	2,534.36	1,913.41
Skipper-Bivins Oil Co., Inc., Longview	12,681.85	9,806.96
Sink, J., Corsicana	180.00	133.00
Simms Oil Co., Dallas	711,523.37	371,537.15
Salado Oil Co., San Antonio	1,233.13	832.13
St. Marys Oil & Gas Co., St. Marys, W. Va.	35,642.89	22,193.45
Senter, E. G., Jr., Dallas	638.50	302.63
Sessions, I. P., Rockdale	359.34	202.95
Shallow San Oil Co., Brownwood	158.00	108.00
Stovall & Son, Graham	21,494.91	16,107.48
Superior Oil Co., Dallas	101,283.01	80,803.85
Swanner, John L., Wichita Falls	993.66	763.58
S. R. C. Oil Corp., San Antonio	52,576.13	36,713.33
Steen Drilling, Inc., Duncan, Okla.	12,057.26	9,187.56
Samuell, J. Howard, et al, Coleman (6-30)	287.52	103.55
Samuell, J. Howard, et al, Coleman (9-30)	122.50	34.27
Samuell, J. Howard, Coleman	96.00	64.32
Smith & Ash, Wichita, Kans.	17,520.15	11,693.50
Sneed Brothers, Tyler	13,165.39	6,046.73
Sikes, Louis, Tyler	31,534.38	24,661.38
Sikes, Louis, Tyler	3,716.69	2,527.34
Sherman Oil & Gas Co., Sherman	2,015.39	969.60
Scott & Nance, Graham	2,053.30	1,562.78
Scott & Britton, Graham	148.32	120.13
Standard Oil & Land & Leasing Co., Electra	62.19	41.04
Shasta Oil Co. et al, Longview	46,061.67	36,094.36
States Oil Corp., Eastland	27,314.22	19,695.72
Spencer, H. H., & Co., Burkburnett	265.61	209.90
Summerfield Oil Co., Tulsa, Okla.	103.24	77.78
Stroube & Stroube, Corsicana	66,819.97	49,820.58
Sayre Oil Co., Wilmette, Ill.	37,962.52	28,976.27
Stewart, W. E., New York, N. Y.	11,806.27	9,084.67
Stekoll, Harry, Tulsa, Okla.	45,216.03	31,384.94
Su-Ni-Oil & Royauty Co., Bloomington, Ill.	5,929.30	4,636.02
Stock, H. I., Cisco	1,604.22	1,197.17
Swearingen, W. B., receiver for Forest Oil Corp., Lockhart	3,715.13	2,102.54
Schermerhorn-Winton Co., Tulsa, Okla.	71,883.72	31,918.39
Slick-Seeligson, Inc., Oklahoma City, Okla.	11,668.52	11,061.28
Spencer, H. E., trustee, care Continental Supply Co., St. Louis, Mo.	639.49	458.41
Sandefer, Atkinson & Daniel Oil Corp., Breckenridge	987.79	770.08
Stanolind Oil & Gas Co., Tulsa, Okla.	1,134,449.33	506,372.98
Stanolind Oil & Gas Co., Tulsa, Okla.	1,799,358.10	1,165,307.28
Shamrock Oil & Gas Co., Amarillo	153,093.51	91,735.47
Sedwick Oil Co., Tulsa, Okla.	3,183.45	2,237.81
Sprague Oil Co., Ardmore, Okla.	4,969.20	1,925.33
Southern Production Corp., El Dorado, Ark.	25,522.05	19,568.88
Smith & McDannald, Electra	1,366.19	953.19
Smith & McDannald, Electra	15,350.28	9,492.67
Skelly Oil Co., Tulsa, Okla.	475,484.75	274,466.41
Smith, H. R., Inc., Luling	59,128.29	43,807.77
Showalter-Russell, Longview	13,450.00	10,440.93
Sequoia Oil Co., Fort Worth	189.32	103.93
Sequoia Oil Co., Fort Worth	12,224.05	6,030.78
South Texas Petroleum Co., Houston	70,602.27	56,712.42
South Shore Oil Co., Houston	4,098.55	4,098.55
Smith, E. L., Oil Co., Inc., Mexia	85,414.36	50,565.45
Skia-Rex Petroleum Co., Amarillo	18,262.92	11,581.51
Sheffield Oil Co., Houston	3,140.49	2,023.35
Smith, J. R., Properties (M. O. Swallow, receiver), Longview	13,173.78	10,110.00
Shertzer Brothers, Dewey	2,541.86	1,970.91
Schlaffke & Blair, Electra	13,875.34	10,699.45
Schermerhorn Oil Co., Tulsa, Okla.	122,068.11	54,432.60
Sand Creek Oil Co., Amarillo	1,977.00	494.25
Sabinas Oil Corp. (formerly Badgett & Cooper Drilling Co.), Longview	80,835.60	63,972.60
Smith, Rex D., Burkburnett	253.60	179.63
Smith, Mrs. James L., Amarillo	3,655.01	2,240.11
Sheldon, C. P., Electra	6,407.33	3,367.24
Spandsco Oil & Royalty Corp., Dallas	31,081.67	24,334.49
Staley, Raming & Raming, Wichita Falls	405.92	308.65
Straughan & Texannati Oil Co., Mertzon	1,562.00	1,008.34
Southern Petroleum Corp., Houston	8,114.67	6,085.99
Shaw Oil Co., Dallas	136,454.61	87,359.34
S. & W. Oil Co., Amarillo	4,748.58	2,412.28
Suloch Oil Co., Amarillo	4,427.22	2,987.96
Smith Salvage Co., Houston	883.54	622.75
Satellite Oil Co., Tulsa, Okla.	11,353.33	9,230.79
Smith, McIntosh & Thomas, Cameron	830.42	446.75
Sircovich, A., and Mrs. F. M. Thomas, Houston	271.16	165.40
Sinclair Oil & Gas Co., Tulsa, Okla.	1,640,453.50	1,273,568.95
Selby Oil & Gas Co., Tulsa, Okla.	97,949.87	77,535.73
Saigh, N. A., San Antonio	80.49	457.94
Stella Oil Co., Beaumont	8,273.47	5,270.32
Skipper, B. A., Oil Co., Inc., Longview	12,540.43	9,725.44
Syndicate Oil Corp., Rochester, N. Y.	270.75	207.02
Section 92, Production account, Pecos	5,686.80	2,561.31
Scarborough, W. A., Burkburnett	986.42	700.30
Seybert Brothers, Mooringsport, La.	2,488.43	3,530.67
Simmons, T. K., Tulsa, Okla.	1,401.24	1,030.24
Somerset Crude Oil Refining Co., Somerset	2,068.46	1,289.77
Somerset Oil Co., San Antonio	667.61	419.62
Stantex Petroleum Co., Oklahoma City, Okla.	24,890.37	19,027.07
Star Drilling Co., Wichita Falls	14,825.07	11,757.49
Stoops, J. P., Ranger	375.51	274.66
Skipper, B. A., Oil Co., Inc., Longview	12,540.43	9,725.44
Staley, J. A., Wichita, Falls	1,152.24	861.43
Southwest Royalty Co., Wichita Falls	5,175.74	3,721.34
Sedwick & Webb, Albany	259.47	179.03
Salmon Oil Co., Dallas	13,321.00	10,123.24
Shappell Oil Co., Wichita Falls	31,665.34	24,675.65
Slicker, Homer, Cisco	634.83	451.32
Smith, W. Claude, San Antonio (9-30)	814.34	521.21
Smith, W. Claude, San Antonio	2,410.16	1,782.82
Shankle, Newton, Oil & Gas Co., Inc., Laredo	31,789.67	22,149.95
Strelsky & Hefley (Joe Strelsky), Rockdale	235.70	125.33
Speed, C. D., Corsicana	206.62	163.00
Schulz & Weaver, Wichita Falls	13,282.01	10,377.02
Schoolfield, R. E., Wichita Falls	168.98	129.20
Schmitt, A. H. and S. P., Fort Worth (9-30)	23,639.00	11,631.11
Schmitt, A. H. and S. P., Fort Worth	15,762.00	12,366.97
Smith, Levi, et al, Texon	8,321.55	6,694.19
Swearingen Oil Co., San Antonio	6,427.49	4,293.54
Sandford Co., Inc., Tyler	10,939.00	8,398.47
Saratoga Oil Co., Wichita Falls	591.70	468.08
Schaffner et al, Cross Plains	504.09	397.46
Schaffner, Wilson, Cross Plains	1,288.07	1,019.69
Simpson-Fall Oil Co. et al, Ardmore, Okla.	6,593.82	4,718.33
Skinner, E. W., Oil Co., Saratoga	3,724.46	2,364.68
Sonnar Corp., El Dorado, Ark.	8,659.63	7,187.49
Southern Drilling & Production Co., Bay City	5,026.50	3,600.08
Section 92, Production account, Pecos	6,398.46	1,918.18
Sinclair Oil & Gas Co., Houston	168,271.26	114,685.51
South Oil Co., Robston	137.22	72.82
Stansylvania Oil & Gas Co., Amarillo	9,859.92	6,066.71
Stratton, Ed. F., Pioneer	234.12	160.49
Smith & Torrans, Tyler	3,320.79	2,756.25
Southern Oil & Production Co., Eastland	1,041.50	762.63
Shell Petroleum Corp., St. Louis, Mo.	5,752,166.09	3,799,135.43
T		
Turner, W. F., Longview	34,719.83	15,406.45
Tannehill, L. B., Albany	16,827.55	12,646.03
Thomas, Sam, trustee, Marshall	12,264.62	9,383.87
Triangle Petroleum Corp., Fort Worth	4,036.06	3,214.18
Texas Oil Underwriters, Brownwood	96.00	46.00
Texota Corp., El Dorado, Ark.	24,736.00	18,902.78
Thomas, J. A., Burkburnett	1,285.16	917.39
Triangle Petroleum Corp., Fort Worth (8-11)	3,320.64	1,704.36
Triangle Petroleum Corp., Fort Worth (9-30)	1,257.10	840.34
Tidal Oil Co., Tulsa, Okla.	1,022,158.85	823,018.64
Timms-Robinson Oil Corp., Amarillo	625.39	414.00
Timms-Dietsch Oil Corp., Amarillo	4,833.06	3,045.30
Texas Consolidated Oil Co., San Francisco, Calif.	9,758.30	6,848.91
Texas Petroleum Dev. Co., Cameron	2,890.42	1,541.90
Texon Oil & Land Co. of Texas, Fort Worth	42,479.71	18,825.70
Taylor-Sibley Syndicate, Dallas	2,116.08	1,478.30
Teatsorth et al, Eastland	772.40	656.84
Trans-Texas Oil Co., Inc., Midland	1,991.09	910.38
Trevino Oil Corp., Laredo	28,383.64	19,813.79
Trico Oil Co., Dallas	18,724.10	15,069.87
Texas Pacific Coal & Oil Co., Thurber	254,060.80	166,513.55
Texas Pacific Coal & Oil Co., Thurber	44,581.37	70,781.30
Texas Gas Co., Houston	2,468.42	1,786.94
Tulsa Oil Co., Tulsa, Okla.	46,106.08	35,648.66
Tidwell, H. L., trustee, Graham	843.10	641.47
Thore Oil Co., Beaumont	2,501.63	1,986.78
Texacal Oil & Gas Co., Glendale	106.62	81.60
Taylor-Link Oil Co., Houston	43,668.07	20,051.70
Timms, Evelyn T., Amarillo	3,706.97	2,355.95
Timms, L. W., Oil Corp., Amarillo	4,059.91	2,530.80
Timms-Fogarty Oil Corp., Amarillo	520.24	261.96
Texas Petroleum Co., San Antonio	30,222.11	17,415.27
Timblin, W. E., Wichita Falls	93.83	73.16
Turman Oil Co., Tulsa, Okla.	286,176.60	219,491.78
Texnia Oil Co. (formerly James Blair Baker, Jr., and C. F Camo, trustee), Wichita Falls	12,742.00	9,804.01
Texas Unity Oil Co., Houston	14,430.07	10,980.52
Tucker Oil Co., Wichita Falls	62,953.72	44,693.76
Trippiehorn, J. W. and D. R., Fort Worth	2,297.34	1,726.33
Tilton, Elvin, et al, Houston	7,283.65	4,836.56
Tidwell, R. V., trustee, Graham	1,946.87	1,289.92
Tidwell, R. V., trustee, Graham	2,857.43	2,177.97
Theis Oil Co., Sour Lake	2,716.59	1,765.30
Tex-Jersey Oil Corp., Tyler	17,979.26	14,112.57
Tarver, A. H., Shreveport, La.	13,871.10	9,863.25
Tarver, A. H., Shreveport, La.	12,925.55	9,912.97
Tarver, A. H., Shreveport, La. (9-30)	8,010.49	3,999.71
Tarver, A. H., Shreveport, La. (August 12)	2,579.69	386.95
Treat, E. M., Oil & Gas Co., Pittsburgh, Pa.	791.27	582.67
Triangle Petroleum Co., Inc., Fort Worth	623.27	486.36
Texas Company, The, Houston	3,399,440.88	2,327,725.77
Trimount Petroleum Co., Shreveport, La.	4,342.07	3,205.78
Travelers Oil Co., Amarillo	8,799.55	5,564.97
Thomas & Traver, Inc., San Antonio	204,335.01	144,194.18
Tucker, W. B., Dallas	24,196.58	18,603.35
Tilton & Perot, Houston	1,505.98	637.93
Triangle Oil & Gas Co., Rockdale	537.11	295.20
Thomason & Fitzsimons, Shreveport, La.	12,559.82	9,748.55
Traylor-Rutherford Oil Corp., Refugio	21,546.02	14,532.74
Trinity Production Co., Wichita Falls	158.92	121.69
Tillman, J. W., Humble	206.56	167.30
Texas Fidelity Oil Corp., Louisville, Ky.	3,255.30	1,470.38
Teel Production Co., Sayre, Okla.	1,117.00	837.75
Trippiehorn, D. R., Pampa	9,254.97	6,232.24
Thomas, J. Elmer, Fort Worth	7.95	5.66
Thompson, J. E., Humble	483.00	313.00
Towns, M. K., Luling	10,563.50	6,057.65
Turnbow, W. C., trustee, Longview	25,984.86	10,050.32

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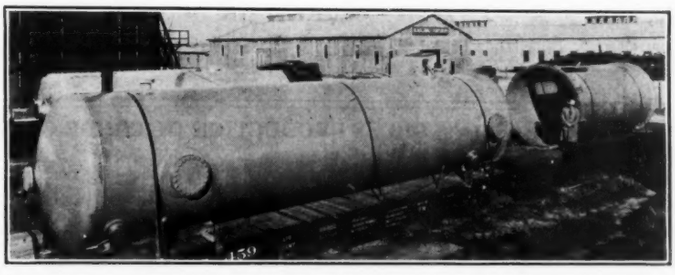
TEXAS GROSS PRODUCTION, FOURTH QUARTER, 1931

Name—	Barrels	Value
U		
University lease, Section 24, Pecos County, San Angelo	2,415.83	1,077.22
Upland Oil Co. and Cady-Conner & Crenshaw, Tulsa, Okla.	8,749.08	5,537.91
United Oil Corp., Wichita Falls	6,256.35	4,958.69
United Producers Co., Wichita Falls	23,864.04	18,983.97
Urban, Andrew, Abilene	843.00	371.02
Urban, O. J., Ranger	876.19	674.80
Unity Oil Co., Beaumont	13,637.00	9,204.48
Usher, Carson, Laredo	932.15	778.80
Union Oil Co. of Nevada, Los Angeles, Calif.	735.28	558.81
Unice & Carpenter, Houston	2,366.35	1,766.25
Unice & Carpenter, Houston (6-30)	2,431.00	1,734.96
Unacre Oil Co. of Texas, San Angelo	6,455.22	5,357.83
Universal Oil & Gas & Mining Co., Shreveport, La. (9-30)	20,666.78	5,395.29
Upchurch & Co., Tyler	23,104.44	17,508.11
Universal Oil, Gas & Mining Co., Shreveport, La. (6-30)	5,172.53	1,637.87
United Production Corp., Houston	939,664.20	695,800.31
Underwood Drilling Co. (Erwin lease), Wichita Falls	652.52	485.21
Underwood Drilling Co. (Perkins lease), Wichita Falls	1,882.13	1,400.43
Underwood Drilling Co. (Underwood & Campbell lease), Wichita Falls	1,621.26	1,269.76
Underwood Drilling Co. (U. C. Ward lease), Wichita Falls	1,326.94	998.04
Underwood Drilling Co. (Ward lease), Wichita Falls	1,947.56	1,474.94
Union Oil & Mining Co., Tulsa, Okla.	3,996.52	2,797.56
United Petroleum Co., Brownwood (9-30)	256.33	115.33
V		
Vacuum Oil Co., Inc., Houston	160,788.21	125,216.69
Vigil Oil & Gas Co., Wichita Falls	7,043.96	5,155.44
Vireca Corp., Houston	7,689.80	6,261.31
Viersen, A. A., and R. E. Viersen, Okmulgee, Okla.	6,648.38	4,781.66
Virginia Oil Association, Inc., Fort Worth	1,784.58	1,391.80
Van Cleave Trust, Baltimore, Md.	358.36	250.62
Ventura Oil Co., Wichita Falls	9,575.27	7,296.29
W		
Wriler, J. G., et al, Cross Plains	1,498.67	1,175.13
Wilson & Swaip, Woodson	493.00	307.12
Wells & Gann Drilling Co., Tyler	14,412.68	10,973.11
Wheelock & Collins, Corsicana	39,456.46	30,745.08
Warner-Quinlan Co. of Texas, Houston	117,944.61	54,279.56
West Florida Oil Co., Tyler	5,754.17	4,775.96
Whale Oil Corp. of Texas, Corsicana	13,414.29	10,283.75
Wainwright West Oil, Ltd., Henderson	13,039.24	9,993.71
Wooley Petroleum Co., Shreveport, La.	146,922.40	107,727.83
Whittington, J. O., Longview	43,905.88	34,628.96
World Oil Co., Inc., Fort Worth	5,984.53	2,819.71
Werby, J. Z., Longview	23,921.49	18,226.59
Weinert, H. H., Seguin	28,169.18	16,075.11
Wellington Oil Co., Ltd., Los Angeles, Calif.	26,474.64	20,237.86
Western States Royalties Co., Chicago, Ill.	41,155.00	27,720.86
Wentz, L. H. (oil division), Ponca City, Okla.	12,694.26	9,603.84
Wolfe & Bradley, Houston	7,788.66	6,464.38
Wise & Jackson, Sapulpa, Okla.	6,526.35	5,019.15
Webster Oil & Gas Co., San Antonio	12,718.48	9,748.13
Witherspoon and Chicago Oil Co., San Antonio	38,997.50	26,166.71
Winston Oil Co., McAlester, Okla.	25,863.62	20,030.85
White, W. B., and associates, Birmingham, Ala.	13,136.51	10,121.75
Wainwright West Oils, Ltd., Henderson	25,873.00	19,868.54
Warner Oil Co., Borger	2,731.70	1,857.06
Washoma Petroleum Co., Enid, Okla.	9,408.62	6,197.36
West Texas Petroleum Corp., San Angelo	23,131.23	10,331.10
White, Lee O., Mentone (9-30)	5,632.00	1,447.11
White, Lee O., Mentone	3,210.54	1,605.27
Woody, W. C., Wichita Falls	18,132.90	14,042.17
Westexas Oil & Royalty Corp., Fort Worth	26,435.04	20,286.98
Wilcox, E. F., Oil & Gas Co. of Texas, Tulsa, Okla.	132,206.44	87,749.06
Wilson & Brown, Kilgore	8,521.72	6,460.24
Wilson & Brown, Kilgore	1,603.87	1,331.21
Ward Oil Corp., Ardmore, Okla.	292,574.22	147,553.60
Westheimer & Daube, Ardmore, Okla.	78,713.37	60,136.24
Weaver-Crim Corp., Eastland	50,009.71	38,227.64
Wilson, W. I., Electra	730.05	569.31
Williams, Mrs. Cora B., independent executrix of John H. Williams, deceased, Dallas	2,573.95	1,948.15
Whitfield, B. V., Oklahoma City, Okla.	154.59	105.12
Worth Petroleum Co., Fort Worth	4,175.45	3,083.45
Wade, B. B., Graham	1,011.28	1,302.37
Winrod Oil Co., Amarillo (9-30)	773.32	323.71
Winrod Oil Co., Amarillo (6-30)	610.22	232.76
Winrod Oil Co., Amarillo (3-31)	624.60	384.58
Woodson Oil Co., Woodson (9-30)	1,079.93	794.93
Winrod Oil Co., Amarillo	1,598.66	1,595.64
Wahhoo Oil Co., Rockdale	753.07	404.11
Witcher, W., et al, Wichita Falls	355.98	282.70
Whitehill Oil Corp., Tulsa, Okla.	4,799.59	3,816.89
Wormer, F. E. Van, Wichita Falls	2,635.67	2,042.59
Wallace, Dr. Charles William, and wife, Hilda B., Wichita Falls	37,480.40	29,596.22
West, Mrs. Bessie M., Houston	1,573.52	1,101.46
Weaver & Pois, Wichita Falls	1,254.31	947.19
White, James H., Wichita Falls	2,978.85	2,324.13
Winston Oil Co., McAlester, Okla. (9-30)	370.00	251.60
Wills Oil Co., Rockdale	709.40	385.23
Wilder, Jack H., Rice	272.67	193.49
Woods, C. D. and C. C., Ranger	507.99	366.07
Woods & Bennett, Humble	3,936.09	2,754.27
Westbrook, R. A., production account, Fort Worth	7,066.13	3,482.89
Westbrook Oil Corp. operating account, Fort Worth	51,455.75	25,473.48
Wilson-Broach Co., Beaumont	9,537.65	6,176.32
Wallace, Dr. William, and wife, Hilda B., Wichita Falls	37,480.40	29,596.22
Williams, J. H., Somerset	237.12	147.00
Wolf, Dr. L., Olney	4,003.82	2,947.09
Waco Oil Co., Waco	209.50	104.75
Webb Oil Co., Humble	2,845.12	1,819.75
Wilson Oil Co., Houston	8,090.51	5,151.82
Witcher, Mrs. Annie (guardian), Wichita Falls	2,606.33	2,077.13
Webb, Luther, Vernon	4,893.64	3,557.40
Webb, Luther, receiver for Waggoner "P" lease, Vernon	26,641.82	19,283.95
Webb, Luther, receiver for Cosden "D" lease, Vernon	7,460.41	5,769.13
Wilkins, L. A., Burkburnett	4,333.46	3,120.09
Wilbarger Oil Co., Wichita Falls	1,023.66	698.34
Wichita Production Co., Wichita Falls	7,428.01	5,686.00
Woodburn Oil Corp., Dallas	925.21	685.97
Wolfe, A. T., Wichita Falls	4,613.62	3,634.99
Waggoner, E. P., and C. F. Kolp, Tyler	3,484.98	2,562.90
Waggoner, W. T., estate, Fort Worth	472.24	332.27
Wise & Porterfield, Tyler	4,083.42	3,099.94
Wilson Drilling Co., Wichita Falls	7,285.63	5,761.22
Wallace, W. W., Cisco	338.20	246.06
Walton, Blair & Schlafeke, Electra	2,216.10	1,697.78
West, C. K., Breckenridge	1,391.89	1,064.17
Webb, J. R., and Q. H. Bryant, Corsicana	216.52	115.75
West, J. H., Fort Worth	7,906.85	6,009.95
West Production Co., Houston	12,874.55	9,170.11
Wo-Mac Oil Co., Wichita Falls	4,364.48	3,505.14
Wrightsman Oil Co., Tulsa, Okla.	13,011.91	11,841.65
Williamson County Petroleum Co., Fort Worth	1,478.33	632.42
Weldon Oil Co., Saratoga	9,111.85	5,017.47
Wood, Benton, Lesh & McCall, Nocona	3,219.90	1,779.73
Wallace & Davis, Minerva	469.71	250.67
Whisenant, Herbert W., receiver for John W. Hooser, Dallas	54,851.05	42,988.76
Wilson, Lee, estate, Wichita Falls	2,414.71	1,604.88
Woodruff Development Co., Inc., Cleveland, Ohio	585.00	405.73
Weekley Oil Corp., Fort Worth	24,955.75	10,665.47
Wright, H. L., receiver for J. T. Stover et al-Alamo Drilling & Leasing Co., Mirando City	9,156.28	6,338.28
Watts, C. D., Moran	516.61	309.50
Worth Oil Co., Wichita Falls	4,281.68	3,188.34
Waggoner Refining Co., Inc., Electra	81,269.49	59,523.96
Witherspoon Oil Co., San Antonio	7,231.43	5,479.03
Y		
Yingling, S. C., for Southern Oil Corp. of America, Winfield, Kans.	14,781.68	5,234.83
Yount Lee Oil Co., Beaumont	1,442,981.36	1,030,094.48
ADDITIONAL REPORTS		
F. & M. Drilling Co., Longview (9-30)	245,134.41	57,864.18
Great Eastern Oil Co., Dallas	2,463.47	1,675.16
Hedger, F. M., Wichita Falls	174.71	137.97
Lebow, C. H., Tulsa, Okla.	1,061.02	841.69
P. & M. Oil Co., Oil City, Pa. (3-31)	71.47	52.05
P. & M. Oil Co., Oil City, Pa. (6-30)	36.03	13.33
P. & M. Oil Co., Oil City, Pa. (12-31)	36.45	30.25
Primrose Oil Co., Sour Lake	671.75	414.18
M. Staniforth, Wichita Falls	1,977.78	1,562.54
Thompson & Beene, Groesbeck (9-30)	1,755.45	1,193.70
Thompson & Beene, Groesbeck (12-31)	5,352.91	3,658.01
Conner Oil Co., Wichita Falls	14,173.24	10,686.11
Armstrong & Day, Gladewater	4,330.84	3,594.59
Black, Harry W., Peoria, Ill.	1,600.00	1,328.00
Brown, C. H., Longview	4,869.92	4,040.04
Brown & Guinn, Wichita Falls	224.27	175.47
Sanary, S. C., Tulsa, Okla.	361.69	264.88
Coogan, Fred L., Sayre, Okla. (9-30)	24,159.15	6,063.65
Coogan, Fred L., Sayre, Okla. (12-31)	14,066.84	10,127.78
Day & Co., Gladewater	2,158.44	1,891.50
Enterprise Oil Corp., Seminole, Okla.	5,237.79	4,347.37
Jackson, Mrs. M. W., Overton	7,664.77	6,208.44
Jarrett, W. R., Oklahoma City, Okla.	8,062.55	6,631.36
Leonard & Patillo, Somerset	95.96	63.28
Lone Pine Oil Co., Tyler	12,950.70	9,912.34
Parcomis Oil & Gas Co., Amarillo	34.60	3.80
Richardson & Kelsey, Fort Worth	41,207.18	18,500.08
Sakaba Oil Corp., Inc., Shreveport, La.	42,203.58	33,015.81
Red River Oil Co., Tulsa, Okla.	10,400.18	8,073.54
Plummer, Albert, Houston	14,939.20	10,158.66
Koenig, Max W., Oakland, Calif.	12,073.58	5,277.04
Graham, Cree & Hoover, Amarillo	5,353.62	3,150.85
Ferguson, W. R., Wichita Falls	403.26	307.39
National Oil & Grease Co., Dallas	30,937.19	25,123.22
Irick Oil Co., Waskom	55.93	43.98
Droppleman Drilling Co., Wewoka, Okla.	12,106.02	29,235.22
Reeder & Scarborough, Wichita Falls	2,161.28	1,690.97
Teddlie, J. E., Liberty	4,148.00	2,686.97
Webb, J. R., Corsicana	163.14	122.69
Imperator Oil Corp., Dallas	66,499.26	43,114.17
Wright, C. H., receiver Sunray Oil Co., Tulsa, Okla.	67,129.45	44,105.48
Consolidated Oil Co. of Texas, Wichita Falls	72,210.59	49,980.90
W. W. R. Oil Co., Inc., Dallas	18,390.49	3,678.09
Hunter & Rowe, Dallas	31,440.00	23,597.06
Luling Oil & Gas Co., San Antonio	85,650.30	58,977.64
Darby Lynde Co. (Carl Pursel), Tulsa, Okla.	14,843.46	11,162.13
Dyck Oil Co., Tulsa, Okla.	21,937.42	16,588.48
Coronado Oil Co., Houston	28,563.21	18,574.12
Savoy Oil Co., Tulsa, Okla.	15,770.32	6,567.62
Rimmer-Hamilton, Tyler	3,970.77	3,295.74
Corzelius Brothers and Taggart, Fort Worth	2,340.62	1,902.21
Charter Oil Co., Brownwood	3,545.79	2,371.14
Hemisphere Oil Corp., New York, N. Y.	15,733.56	6,424.23
H. A. M. Oil Co., Chicago, Ill.	9,025.37	6,178.59
Franklin, Wirt, Petroleum Corp., Ardmore, Okla.	7,131.00	5,644.08
Windham, B. F., Pettus	110.00	4.40
Snyder, W. C., No. 1 Greer, G. P. Penn Survey, Tyler	3,743.60	3,107.18
Producers Investment Corp., Dallas	10,348.33	8,030.93
Oils, Inc., Oklahoma City, Okla.	17,818.52	15,962.12
Ames, E. W., et al, Marshall	396.50	321.80
Ark Oil Co., Okmulgee, Okla.	14,394.30	10,881.59
Baldwin-Sultan Oil Co., Walters, Okla.	19,725.81	13,222.56
Chalk, Otis, Big Spring	4,321.83	1,898.08
Cullen Oil Co., Henderson	11,176.03	8,563.87
Dawson, C. K., Ponca City, Okla.	5,279.24	4,381.76
Ebony Oil Co., Henderson	17,066.46	13,235.89
F. & M. Drilling Co., S. G. Faust, receiver, Longview	24,097.63	10,744.40
Fisher, J. A., Wichita Falls	877.71	658.85
Hankamer, Earl C., & Co., Sour Lake	219.98	142.34
LeMaster, H. H., trustee, Tyler	12,982.78	9,923.22
Lewis, Guy V., estate, Judge Nat Brooks, receiver, Tyler	74,814.50	28,608.85
Miller, Paul L., Kilgore	5,611.15	4,657.25
Nabob Oil & Gas Co., Amarillo	31,634.99	17,394.23
Ray & Miller, Dallas	6,126.71	5,085.17
Sneed Brothers, Tyler (9-30)	38,028.60	8,667.61
Sneed Brothers, Tyler	10,115.61	7,809.73
Stephens Oil Co., Sour Lake	585.31	377.04
Willard Oil Co., Henderson	15,481.47	11,110.98

TOWER IS COMPLETED FOR GULF REFINING CO. PLANT



The accompanying picture is significant of the manufacturing facilities afforded the entire oil industry by factories in the Mid-Continent area and is especially indicative of the ability of the American Tank & Equipment Corp. of Oklahoma City in fabricating refinery equipment. This company, the manufacturing subsidiary of Black, Sivalls & Bryson, Inc., of Bartlesville, Okla., recently completed and delivered, among other jobs in the North and East, a tower for the Toledo, Ohio, plant of the Gulf Refining Co. This tower is 102 inches in diameter and 55 feet high. It weighs 63,140 pounds and was tested at 150 pounds pressure. The tower was designed by the Jackson Engineering Corp. of Tulsa.

Another shipment to the East consisted of a 45-inch absorber, 54 feet long, fabricated of one-half inch shell plates and delivered to the Gulf Refining Co. at Neville Island, Pa. This absorber weighed 16,000 pounds. It also was designed by the Jackson Engineering Corp.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Report for Month of December

RUNS

	Month bbls.	Daily av. bbls.
Prairie P. L. Co.*	697,500	22,500
Gulf P. L. Co.	1,965,109	63,391
Texas P. L. Co.	748,985	24,161
Magnolia P. L. Co.	1,734,760	55,960
Empire P. L. Co.	2,468,143	79,618
Cosden P. L. Co.	682,211	22,007
Stanolind P. L. Co.*	3,193,000	103,000
Oklahoma P. L. Co.	2,316,497	74,726
Other lines*	5,990,750	193,250
Total December	19,796,955	638,611
Total November	19,562,416	652,080
Difference	234,539	13,469

SHIPMENTS

Prairie P. L. Co.	2,382,895	76,868
Gulf P. L. Co.	2,047,205	66,039
Texas P. L. Co.	584,385	18,851
Magnolia P. L. Co.	1,290,374	41,625
Empire P. L. Co.	1,515,327	48,882
Cosden P. L. Co.	802,576	25,890
Stanolind P. L. Co.	3,557,622	114,762
Oklahoma P. L. Co.	2,400,708	77,442
Other lines*	4,774,000	154,000
Total December	19,355,129	624,359
Total November	19,329,044	660,985
Difference	473,915	36,626

STOCKS

	Bbls.
Prairie O. & G. Co.*	35,211,000
Gulf P. L.-Gypsy Oil Co.	7,988,187
The Texas Company	3,328,694
Magnolia Petroleum Co.	7,779,567
Empire P. L. Co.	4,589,901
Mid-Continent Pet. Corp.	3,323,588
Stanolind Crude Oil Pur. Co.*	16,583,000
Oklahoma P. L. Co.	1,302,734
Carter Oil Co.	6,494,184
Other lines*	15,463,000
Total December	102,072,255
Total November	100,025,383
Difference	2,046,872

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF JANUARY

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for December and January:

	Dec.,'31	Jan.,'32
Nat. Transit	134,728.53	132,346.98
S. W. Pa. P. L.	78,639.10	64,883.40
Eureka P. L.	304,834.50	264,733.46
Buckeye P. L. (Macksburg)	276,673.59	231,436.17
Buckeye P. L. (Cleveland)	12,125.02	12,765.55
Buckeye P. L. (Lima, etc.)	77,185.73	70,902.02
Indiana P. L.	2,581.64	2,957.69
N. Y. Transit	42,593.82	42,434.50
Tide Water P. L.	24,880.76	21,527.15
Pure Oil	350,431.59	343,184.55
Stoll Oil Ref.	36,806.03	61,955.78
Bradford Tran.	422,865.63	409,404.66
Total	1,916,885.82	1,658,531.92
Daily average	61,835.03	53,501.03

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec.,'31	Jan.,'32
Nat. Transit	554,540.59	546,544.24
S. W. Pa. P. L.	426,018.53	327,706.71
Eureka P. L.	318,074.34	266,906.78
Buckeye P. L. (Macksburg)	233,257.65	247,543.60
Buckeye P. L. (Cleveland)	1,709.74	1,710.80
Buckeye P. L. (Lima, etc.)	1,578,295.69	1,483,164.35
Indiana P. L.	738,240.58	720,776.96
Southern P. L.	61,152.44	45,091.84
N. Y. Transit	176,524.14	160,691.41
Northern P. L.	134,129.64	167,659.81
Tide Water P. L.	372,501.01	582,162.04
Pure Oil	190,150.36	322,591.72
Bradford Tran.	448,373.68	604,570.61
Tuscarora	330,473.61	305,988.46
Total	5,463,472.00	5,783,109.33
Daily average	175,241.03	186,551.91

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of December and January:

	Dec.,'31	Jan.,'32
Nat. Transit	647,268.73	708,300.22
S. W. Pa. P. L.	484,609.86	452,222.36
Eureka P. L.	1,205,561.50	1,218,191.97
Buckeye P. L. (Macksburg)	298,989.13	265,000.88
Buckeye P. L. (Cleveland)	45,401.41	38,126.48
Buckeye P. L. (Lima, etc.)	2,890,304.17	2,936,849.21
Indiana P. L.	543,883.89	520,692.84
Cumberland P. L.	64,500.81	64,500.81
Southern P. L.	229,411.72	258,415.23
N. Y. Transit	145,567.39	198,406.61
Northern P. L.	314,690.06	334,194.85
Tide Water P. L.	1,107,832.07	974,418.35
Pure Oil	803,723.79	887,230.61
Tuscarora	10,793.98	10,920.81
Bradford Tran.	326,488.02	156,443.22
Total	9,119,032.53	9,023,914.45
Decrease		95,118.08

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of December and January, showing gross stocks of the above fields:

	Dec.,'31	Jan.,'32
Pennsylvania	3,289,870.05	3,219,630.21
Lima	598,134.96	602,805.09
Kentucky	74,898.32	74,908.32
Mid-Continent	4,422,734.01	4,306,150.37
Michigan	733,395.19	820,420.46
Total	9,119,032.53	9,023,914.45

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1929	1930	1931	1932
January	51,749	75,907	53,939	53,501
February	51,832	79,256	55,163	.....
March	54,252	76,688	54,331	.....
April	58,444	84,536	54,914	.....
May	59,902	70,546	53,344	.....
June	58,833	75,430	54,110	.....
July	66,087	68,921	50,723	.....
August	66,087	54,291	51,503	.....
September	67,315	56,595	61,345	.....
October	76,093	58,179	65,595	.....
November	74,831	52,332	59,819	.....
December	74,561	53,999	61,835	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1929	1930	1931	1932
January	165,721	217,622	175,369	186,551
February	159,387	224,355	183,494	.....
March	161,474	228,846	189,508	.....
April	169,737	241,845	191,450	.....
May	184,281	248,383	199,247	.....
June	185,404	234,401	221,155	.....
July	194,763	207,094	211,632	.....
August	194,946	205,506	224,166	.....
September	201,214	193,999	217,537	.....
October	191,367	157,675	210,831	.....
November	202,743	146,638	196,425	.....
December	186,257	143,001	176,241	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1930	1931	1932
January	12,220,045	11,831,092	9,023,914
February	12,991,561	11,506,489	.....
March	13,247,217	11,012,162	.....
April	13,233,961	11,044,481	.....
May	13,052,953	10,728,239	.....
June	13,396,855	9,903,349	.....
July	13,268,562	9,569,849	.....
August	13,047,051	9,192,457	.....
September	12,812,018	8,492,431	.....
October	12,437,563	8,417,694	.....
November	11,851,380	8,830,386	.....
December	11,751,952	9,119,032	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Feb. 1	484,419.77
Runs from wells	476,649.97
Regular deliveries	224,331.04
Other deliveries	200,937.11

The amount of Illinois oil run by the Tide Water Pipe Co. in January was 21,527.15 bbls. Deliveries were 22,303.06 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1932—		
January	500,177.12	246,634.10
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,638.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13
July	520,009.38	289,219.05
August	476,623.56	393,231.06
September	492,183.83	323,012.50
October	498,124.13	325,834.95
November	470,302.63	281,258.48
December	515,771.28	306,623.19
1930		
January	543,387.95	498,293.93
February	548,416.33	414,536.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,069.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,642.12	375,742.42
September	457,001.11	371,691.62
October	478,442.12	320,688.73
November	422,794.68	355,403.12
December	556,418.78	363,719.55

Tide Water Pipe Co., Ltd., also delivered in January 293,024.35 bbls. Oklahoma oil.

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1931—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
January	17,613	13,519	154,225	32,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	31,129	238,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	105,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	26,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	16,833	111,767	27,000	20,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903
August	32,613	15,581	91,742	22,387	25,741	188,064	4,161	2,516	.....	3,162	9,839	197,903
September	37,067	7,367	106,867	20,099	22,967	194,267	4,823	8,333	.....	.....	13,166	197,433
October	62,710	14,484	100,774	26,742	40,645	236,355	6,097	6,871	2,097	1,838	16,903	253,258
November	46,033	28,800	51,667	28,600	12,967	170,067	3,933	10,833	3,033	1,367	19,166	189,233
December	20,258	16,806	121,807	31,645	34,258	224,774	1,968	4,355	.....	.....	6,323	231,097

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1931—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903
August	3,452	.....	16,419	7,419	4,296	31,580	.....	.....	.....	.....	968	32,548
September	4,267	3,667	12,933	4,699	7,367	32,933	.....	.....	.....	.....	4,000	36,933
October	2,355	1,129	19,290	16,709	9,323	48,806	.....	.....	.....	.....	3,323	52,129
November	1,000	.....	22,800	11,567	.....	35,367	.....	.....	.....	.....	3,366	38,733
December	3,161	.....	22,484	8,839	6,032	40,516	.....	.....	.....	.....	7,742	48,258

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1931—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	16,485,738	14,850,953	20,019,312	3,432,475	1,574,955	2,135,037	2,966,142	3,374,000	64,838,613
	Daily average	531,795	479,063	645,781	110,725	50,805	68,872	95,682	108,839	2,091,566
February:	Month	14,930,932	13,531,980	18,957,571	3,341,016	1,402,492	1,981,616	2,747,024	3,129,000	60,021,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,143,628
March:	Month	16,364,842	16,627,687	22,468,819	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,602
	Daily average	527,898	536,377	724,810	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,541	16,815,990	26,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,384,239
	Daily average	526,785	559,255	896,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,333,867	28,708,684	3,341,366	1,446,274	2,232,563	3,098,419	3,190,000	75,800,133
	Daily average	530,612	559,157	926,086	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,678,200	29,139,833	3,175,440	1,344,450	1,850,511	2,986,200	3,166,000	73,982,070
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,069
July:	Month	16,093,322	16,420,080	33,827,313	3,089,832	1,287,585	1,715,730	2,905,909	3,341,000	78,680,671
	Daily average	519,139	529,680	1,091,200	99,672	41,535	55,345	93,739	107,774	2,538,070
August:	Month	15,668,984	9,517,279	32,279,816	3,141,323	1,165,569	1,584,444	2,907,143	3,167,000	69,331,558
	Daily average	505,451	307,009	1,041,284	101,333	37,599	51,111	90,553	102,161	2,236,503
September:	Month	15,180,610	7,946,880	28,981,525	3,147,030	1,128,300	1,641,884	2,761,230	3,632,000	64,439,025
	Daily average	506,020	264,896	966,051	104,901	37,946	54,713	93,041	121,067	2,180,968
October:	Month	15,651,983	12,951,893	30,725,173	3,177,066	1,173,389	1,822,355	2,797,597	3,900,000	72,198,356
	Daily average	504,903	417,803	991,134	102,486	37,819	58,782	90,247	125,807	2,328,973
November:	Month	14,997,700	16,430,730	28,860,561	3,131,670	1,130,700	1,851,577	2,706,390	3,639,000	72,748,328
	Daily average	499,923	547,691	962,018	104,389	37,690	61,719	90,213	121,300	2,424,944
December:	Month	15,560,984	16,598,299	27,767,851	3,198,642	1,082,148	1,971,817	2,816,759	3,645,000	72,641,100
	Daily average	501,967	535,429	903,860	103,182	34,908	63,607	90,863	117,581	2,343,261
Total 12 months		188,829,032	175,703,848	328,698,575	38,956,338	15,626,407	22,856,536	34,392,713	40,330,000	845,803,454
Daily average		517,340	481,370	900,297	106,730	42,812	62,621	94,227	111,863	2,317,370